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THE JUNIOR COLLEGE

BY

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PART III

THE FORCES OF REORGANIZATION IN HIGHER EDUCATION

CHAPTER XV

THE ADVANCING AGE OF THE COLLEGE ENTRANT

The claims touching reorganization in higher education.—Certain current conceptions of special purposes of the junior college having more or less intimate bearing on the organization of secondary and higher education are to be found in Groups II and III of Table V and Figure 4 (Chapter II). Among these, to name only a few where this relationship is patent, are Purpose 10, placing in the secondary school all work appropriate to it; Purpose 11, fostering the evolution of the system of education; Purpose 13, economizing time and expense by avoiding duplication; and Purpose 16, making possible real university functioning. The implications of such claims are so far-reaching that no study of the junior college movement making pretensions to comprehensiveness could escape criticism if it neglected to inquire into their validity. The findings of this phase of the investigation are reported in Parts III and IV, the latter dealing exclusively with the problem of overlapping in high school and college, the former being devoted to a discovery of the evidences of the reorganization which is destined to assign to the junior college a logical place in the school system. The evidences are presented as pertaining to the problem of reorganization as a whole rather than to a scrutiny of the validity of each particular claim made as shown in Table V and Figure 4.

The far-reaching reorganization disclosed in this and the following chapters of Part III has come upon our secondary and higher schools so gradually and imperceptibly that there is little general consciousness of its profound character and extended ramifications. Indeed, there are those who are presumed to be leaders in the field who seem still to be totally unaware of it, or, if they see it, unappreciative of its forces, are King Canute-like endeavoring to command its tides to recede. They appear by their attitudes to assert that the American college is today what it has always been, and that it is foreordained to remain immutable in the future. The facts presented render such assumptions untenable, but they do much more in the light they throw on the justifiability of the claims of the friends of the junior college as to its place in a scheme of reorganized secondary and higher education.

The general situation as to the ages of college freshmen.—An important consideration in evaluating the claims that the American college has undergone little or no change since its establishment during the colonial period, and remains today what it has always been, is the age of the student attending. Although not common knowledge, information has been available to

indicate that during the later decades of the preceding century students entered college at more advanced ages than during the first third of the century. Even as late as 1851 a writer in the *North American Review*[1] speaks of boys entering college at fifteen or sixteen and their need of having parental discipline while in attendance. The marked advance in age is shown in the following quotation from an earlier president of Harvard:

> What we want is, that a year or a year and a half more should be added to the studies and the age of those who offer themselves for admission. And this . . . . will be done. For a full century the current has been setting in this direction. In the four consecutive years beginning with 1762, the average age of the students on entering college, was 16 years and 2 months; in the four consecutive years beginning with 1806, it was 16 years and 4 months; in the four consecutive years beginning with 1820 it was 16 years and 11 months; while in the four consecutive years beginning with 1860 it was 17 years and 8 months . . . . In the first of the above mentioned groups of classes, nearly a third were under 15 when they entered; in the second nearly one half; and in the third, more than a third of the whole number were under 16. On the other hand, in the fourth and last group . . . . out of 477 admitted, there was but one under 15, and only 18 under 16.[2]

The last sentence but one of this quotation indicates that it was possible for a student in the earlier period of the history of one of our strongest colleges to enter at a very young age—in fact, at the same age and even younger than children now enter high school. It also appears that it was far from an uncommon practice.

Earlier and more recent distributions compared. A. Method.—Because this advancing age of the college entrant is heavily weighted with meaning in any reorganization of higher education, the needs of this investigation could not be satisfied by mere quotation of statements of this sort, but required further description of the extent and character of the changes in age illustrated.

One thing presented here to provide this more nearly complete description was the compilation from admission records of the data presented in Table XCII. As may be seen, this table is devoted mainly to the presentation of the ages at entrance at several points extending over more than a century, of freshmen at Harvard, but contains also the distribution of ages at entrance of freshmen in the University of Minnesota in 1921. Except for the 1916 group the data include *all* new students admitted to Harvard College as freshmen in the years indicated. For 1916, the first 421 alphabetically arranged (from A through O) only were included, since this large number thus randomly selected will give almost as dependable a distribution and measure of central tendency as would the full list of freshmen. A similar practice was followed in the case of the Minnesota

[1] *North American Review* 72:82.
[2] *Massachusetts Teacher.* 19:342 ff. 1866.

group, the ages of entrance of the first 631 in alphabetical arrangement being used. For the earlier points in the nineteenth century for Harvard, several classes were introduced because freshman classes in that period were relatively small. The manner of computing ages as tabulated was that now standard in studies of age-grade distributions in lower schools: they are computed as of September 1 and any individual is placed at a particular age if he attained that age within three months before or three months after September 1 of the year of admission. It is to be noted that half-year groupings have been used throughout.

Distributions compared. B. Findings.—When we turn to the distributions and measures of tendency themselves, a number of interesting and significant facts become apparent. The distribution for Harvard during the earlier periods is seen to have been very wide, extending from 12 or 12½ to 29 years of age. The larger numbers and percentages at each age, however, are to be found at the upper end of the tabular distribution. The range narrows notably between the first and second and the second and third groups, but seems to be roughly constant thereafter. The measures of tendency at the foot of the table, given in years and months, and Figure 52, bear out these interpretations. The range of the middle fifty per cent (first to third quartile) is 3 years and 6 months during the first period, shrinks to 1 year and 9 months by the second period, and shrinks again to 1 year and 4 months by 1858-59. The median drops from 16 years and 8 months near the opening of the nineteenth century, to 5 months less thirty years later, and then advances by large steps for a half century. By 1879-80 this median age has attained its maximum and evidences a slight tendency to decline. In point of fact, the median decline in the thirty-six years between 1880 and 1916 is only 3 months. At the rate it fell during this period, it would require almost a century and a half to compass a full year. The decline in the later period is inconsequential when compared with the rise of 2 years and 4 months in the half century between the second and fourth periods represented.

The two minor descents to which attention has been called should not be passed by without some attempt at explanation. The former is probably to be accounted for by the wider prevalence of opportunities for preparation for college which accompanied the rapid development of the nation shortly after the opening of the century. The latter must have been the result of conscious efforts to advance capable students more rapidly which were made in lower schools during the last decades of the preceding century, and which still continue.

TABLE XCII

DISTRIBUTION OF AGES AT ENTRANCE TO HARVARD OF FRESHMEN IN 1798-1802, 1829-32, 1858-59, 1879-80, 1899, AND 1916, AND TO THE UNIVERSITY OF MINNESOTA IN 1921

AGE	HARVARD 1798-1802		HARVARD 1829-32		HARVARD 1858-59		HARVARD 1879-80		HARVARD 1899		HARVARD 1916		MINNESOTA 1921	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
12	..	..	1	0.5	..	..	..	..	..	..	..	..	..	..
12½	1	0.4	..	..	..	..	..	..	..	..	..	..	..	..
13	3	1.2	2	1.0	..	..	..	..	..	..	..	..	..	..
13½	4	1.5	1	0.5	..	..	..	..	..	..	..	..	..	..
14	14	5.4	7	3.4	..	..	..	..	..	..	..	..	..	..
14½	27	10.3	7	3.4	..	..	..	..	..	..	..	..	..	..
15	21	8.1	27	13.2	1	0.4	..	..	..	..	..	..	2	0.3
15½	19	7.3	29	14.1	5	2.1	..	..	..	..	3	0.7	..	..
16	24	9.2	29	14.1	15	6.3	2	0.5	3	0.7	9	2.2	8	1.3
16½	23	8.8	34	16.6	21	8.8	11	2.5	15	3.3	16	3.9	18	2.9
17	16	6.2	26	12.7	41	17.2	31	7.1	39	8.5	36	8.7	45	7.1
17½	15	5.8	17	8.3	51	21.4	56	12.8	43	9.4	51	12.4	82	13.0
18	16	6.2	6	2.9	41	17.2	76	17.4	90	19.7	75	18.2	108	17.1
18½	14	5.4	5	2.4	23	9.7	71	16.1	73	16.1	78	18.9	107	17.0
19	7	2.7	2	1.0	13	5.5	65	14.9	83	18.2	50	12.1	77	12.2
19½	11	4.2	2	1.0	9	3.8	34	7.8	50	11.0	38	9.2	53	8.4
20	5	1.9	1	0.5	3	1.3	32	7.3	22	4.8	24	5.8	31	4.9
20½	5	1.9	..	..	3	1.3	19	4.3	8	1.8	17	4.1	28	4.4
21	5	1.9	1	0.5	3	1.3	16	3.7	12	2.6	3	0.7	17	2.7
21½	9	3.5	1	0.5	2	0.8	8	1.8	2	0.4	3	0.7	16	2.5
22	2	0.8	1	0.5	1	0.4	3	0.7	3	0.7	4	1.0	8	1.2
22½	5	1.9	1	0.5	1	0.4	..	..	2	0.4	1	0.3	9	1.4
23	2	0.8	2	1.0	4	1.7	5	1.1	6	1.3	..	..	5	0.8
23½	3	1.2	3	1.5	1	0.4	..	..	1	0.2	1	0.3	4	0.6
24	3	1.2	..	..	..	..	2	0.5	1	0.2	1	0.3	5	0.8
24½	2	0.8	..	..	..	..	..	..	..	..	..	..	..	..
25	..	..	..	..	..	..	2	0.5	2	0.4	2	0.5	3	0.5
25½	2	0.8	..	..	..	..	2	0.5	..	..	..	..	1	0.15
26	..	..	..	..	..	..	..	..	..	..	..	..	3	0.5
26½	1	0.4	..	..	..	..	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	2	0.5	..	..	..	..	..	..
27½	..	..	..	..	..	..	..	..	..	..	..	..	1	0.15
29	1	0.4	..	..	..	..	..	..	1	0.2	..	..	..	..
32	..	..	..	..	..	..	..	..	1	0.2	..	..	..	..
TOTAL .	260	100.2	205	100.1	238	100.0	437	100.0	457	100.1	412	100.0	631	99.9
First quartile	15-2		15-4		17-0		17-10		17-10		17-8		17-9	
Median ..	16-8		16-3		17-7		18-7		18-6		18-4		18-6	
Third quartile	18-8		17-1		18-4		19-6		19-3		19-0		19-6	

Further description of the extent and character of the difference in ages of admission is presented in Figure 53. In order to economize space the table corresponding to this figure is not reproduced, although all data utilized are to be found in Table XCII. This figure is to read as follows: approximately 5 per cent of the freshmen entering Harvard in 1829-32 were 14 years of age and under, approximately 9 per cent were 14½ and under, almost 22 per cent were 15 and under, etc. A comparison of almost all percentile points on the curves for Harvard in 1829-32 and in 1916, shows them to be almost consistently a full two-year period apart, as was foreshadowed by the differences between the medians. The curve for Minnesota freshmen, except for being slightly higher, shows them to have had an almost identical percentage distribution as for the Harvard group. We may assume, on account of the fact that Harvard and Minnesota represent, respectively, the large eastern private and the large western public institutions, that the age distribution of entering freshmen just referred to is fairly representative of that in all of our standard higher institutions.

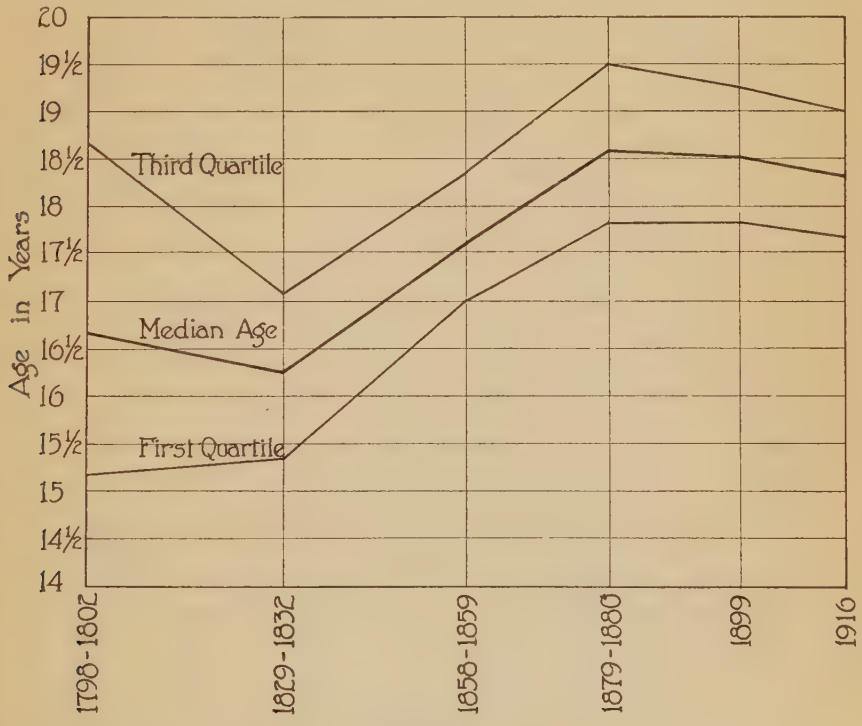

Figure 52

Median ages and ranges in age of the middle 50 per cent of freshmen admitted to Harvard in 1789-1802, 1829-32, 1858-59, 1879-80, 1899, and 1916

The situation in other older colleges.—There is less warrant for assuming that the distribution for Harvard in 1829-32 is fully representative of all higher institutions in that earlier period. It is on this account that Tables XCIII and XCIV and Figure 54 are presented. Table XCIII, as may be seen, gives the age distributions for three other strong colleges in existence during the early portions of the preceding century, viz., Amherst, Bowdoin, and Dartmouth. At the foot of the table are to be found the same measures of tendency as were computed for Table XCII. Except for Bowdoin, the medians and some of the quartile measures are found to be higher than for Harvard in the corresponding period. Notwithstanding this difference a glance at the distributions for the schools with the higher medians will make clear that they also enrolled large proportions of students at very young ages—almost as young, in fact, as those enrolled at Harvard. This characteristic of enrolling young students all the distributions have in common. The essential difference between the distributions is that Amherst and Dartmouth freshmen tend to spread over a wider range of ages and into the upper years to a larger extent than freshmen entering Bowdoin and Harvard.

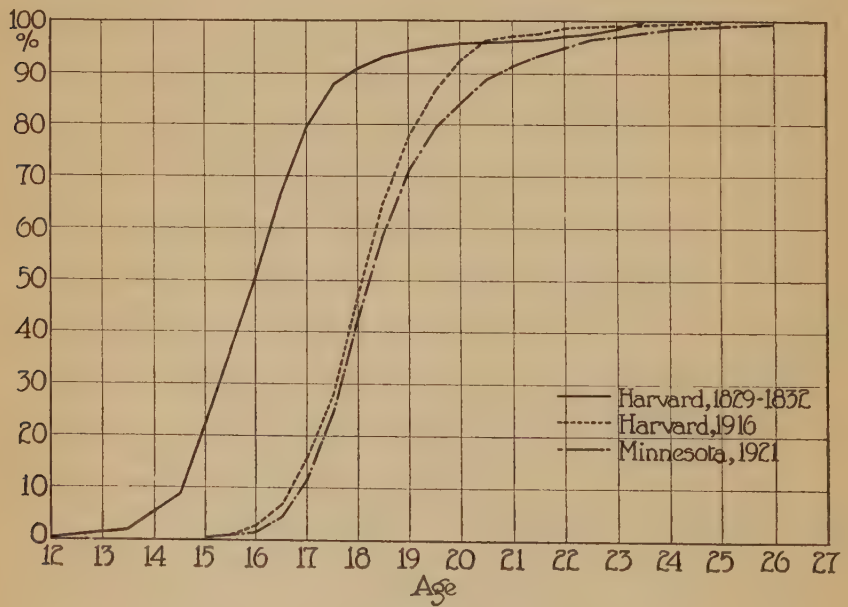

Figure 53

The percentages of freshmen entering Harvard in 1829-32 and in 1916, and Minnesota in 1921, who were at, and under, each year of age on September 1 of the year of admission

TABLE XCIII

DISTRIBUTIONS OF AGES AT ENTRANCE OF FRESHMEN TO AMHERST IN 1827-31, TO BOWDOIN IN 1810-17, AND TO DARTMOUTH IN 1800-1804

AGE	AMHERST 1800-1804		BOWDOIN 1810-17		DARTMOUTH 1827-31	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
11	..	..	1	1.0	..	..
12	..	..	..	..	1	0.7
12½	..	..	1	1.0	..	..
13	..	..	4	3.8	..	..
13½	..	..	2	1.9	1	0.7
14	4	1.9	..	..	3	2.0
14½	7	3.4	8	7.6	6	3.9
15	9	4.3	8	7.6	7	4.6
15½	18	8.7	4	3.8	7	4.6
16	15	7.2	9	8.5	6	3.9
16½	12	5.8	11	10.5	10	6.5
17	8	3.9	9	8.5	5	3.3
17½	8	3.9	5	4.8	12	7.8
18	6	2.9	4	3.8	11	7.2
18½	14	6.8	4	3.8	10	6.5
19	9	4.3	2	1.9	8	5.2
19½	12	5.8	6	5.7	9	5.9
20	14	6.8	2	1.9	5	3.3
20½	9	4.3	4	3.8	6	3.9
21	8	3.9	2	1.9	8	5.2
21½	5	2.4	6	5.7	8	5.2
22	12	5.8	4	3.8	4	2.6
22½	5	2.4	2	1.9	8	5.2
23	4	1.9	1	1.0	4	2.6
23½	9	4.3	2	1.9	3	2.0
24	7	3.4	1	1.0	2	1.3
24½	4	1.9	2	1.9	3	2.0
25	4	1.9	..	..	2	1.3
26	..	..	..	..	1	0.7
26½	1	0.5	..	..	..	..
27	2	1.0	..	..	..	..
27½	..	..	..	..	3	2.0
29½	1	0.5	..	..	..	..
41½	..	..	1	1.0	..	..
TOTAL	153	100.1	105	100.0	207	99.9
First quartile	16-8		15-7		16-3	
Median	18-8		17-0		18-11	
Third quartile	21-0		19-11.5		21-6	

This common characteristic of enrolling young students stands out unequivocally in Table XCIV, which shows the number of freshmen entering the several institutions under consideration at 14½ years of age and under, 15½ years and under, etc. For the sake of showing the contrast with the present day situation, this table includes analogous figures for Harvard in 1916 and Minnesota in 1921. The numbers and percentages in the last two pairs of columns show no appreciable proportions of freshmen until the 16½ year group is reached, whereas all the columns to the left of these show significant numbers at 14½ and under, and large proportions at 15½ and 16½ and under. Figure 54 emphasizes the same fact, besides showing the tendency for many to enter some of the older colleges at comparatively advanced ages.

TABLE XCIV

NUMBERS AND PERCENTAGES OF FRESHMEN ENTERING AMHERST IN 1827-31, BOWDOIN IN 1810-17, DARTMOUTH IN 1800-1804, HARVARD IN 1829-32 AND 1916, AND MINNESOTA IN 1921 AT 14½ YEARS AND UNDER, 15½ YEARS AND UNDER, ETC.

AGE	DARTMOUTH 1800-1804		BOWDOIN 1810-17		AMHERST 1827-31		HARVARD 1829-32		HARVARD 1916		MINNESOTA 1921	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
14½ and under	11	7.2	16	15.2	11	5.3	18	8.8	..	..	..	..
15½ and under	25	16.3	32	30.5	38	18.4	74	36.1	3	0.7	2	0.3
16½ and under	41	26.8	48	45.7	65	31.4	137	66.8	28	6.8	28	4.4
17½ and under	58	37.9	62	59.0	81	39.1	180	87.8	115	27.9	155	24.6
18½ and under	79	51.6	70	66.7	101	48.8	191	93.2	268	65.0	370	58.6
Total number of students considered ..	153		105		207		205		412		631	

The proportions of the younger age groups as given for Amherst, Bowdoin, and Dartmouth are actually smaller than they would have been found to be, had the investigator had access to the records of admission, as was the case for Harvard and for Minnesota. For the three colleges named, the method of ascertaining the ages at entrance was to find in the "general catalogues" or "alumni registers" of these institutions the day, month, and year of birth of members of certain graduating classes, and, assuming that the student entered four years before graduation, compute the age of the student at the assumed time of entrance. This method has the weakness of ignoring the fact that, for one reason or another, such as remaining out of college for a year, some students do not complete the college course in four consecutive years. It may be seen that in so far as this method would bring misrepresentative results, they would make for

smaller than the actual percentages at the younger ages. It has therefore the merit of at least being conservative.

As the writer had access to both the records of admission and to materials that correspond to dates of birth as published by classes in general catalogues,[3] it was possible for him to ascertain the proportion of error. For most of the ages under nineteen the percentages from the latter materials are from three to four per cent lower than when computed from records of admission. We are therefore justified in assuming that the percentages presented for the lower age groups for Amherst, Bowdoin, and Dartmouth in Table XCIV and Figure 54 were three to four per cent larger than as given.

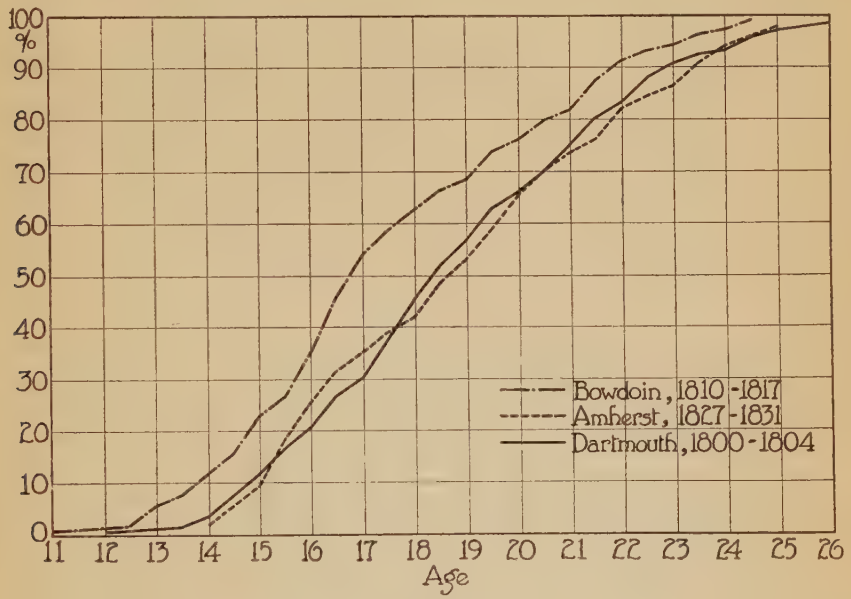

Figure 54

The percentages of freshmen entering Amherst in 1827-31, Bowdoin in 1810-17, and Dartmouth in 1800-1804 who were at, and under, each year of age on September 1 of the year of admission

Summary.—These materials indicate remarkable differences between the ages of entrance to college in the early decades of the nineteenth century and in its later portions, as well as in the current situation. In some instances, as with Bowdoin and Harvard, especially the latter, the difference tends to persist throughout the distribution, and is reflected in large differences between the measures of tendency, i.e., the median, and the

[3] A special file in the Widener Memorial Library of Harvard University.

first and third quartiles. For Harvard *the difference between the respective points is fully two years,* while for Bowdoin in the earlier decades as compared with Harvard or Minnesota more recently there is a difference of fully two years at the first quartile and a year and a half at the median. In other instances there is little difference between the medians, owing to the delayed entrance of a considerable proportion. This delayed entrance itself must have its explanation, not in the extent of preparation required (this will be canvassed in the subsequent section) but in the relative inaccessibility for many of preparatory education. *In contrast with these medians are the large proportions who entered Amherst and Dartmouth at 14½, 15½, and 16½ and under, whereas freshmen of these ages constitute a negligible proportion today.*

Thus, the characteristic which all the early distributions in the four colleges considered have in common is the early ages at which large proportions of their students entered upon what was then regarded as college work. The point of significance is that the course of college instruction was of such a nature that children of these immature years—11, 12, 13, 14, 15, and 16—could and did accomplish the work. In this essential respect at least there is an outstanding difference between the college of the past and of the present.

CHAPTER XVI

THE WIDENING SCOPE OF COLLEGE ENTRANCE REQUIREMENTS

It would be surprising indeed if the advancing age of the college entrant made apparent in the section of this report just concluded were not accompanied by an increasing amount of educational content required for admission to college. Such a tendency to increase is just what strikes one's attention with most emphasis when he undertakes to attempt any summary of the changes which have taken place in the requirements for admission to college during the last hundred years.

The nature of the changes which have taken place must, as in the case of the study of the ages of college entrants, be shown by reference to eastern institutions which have maintained continuous existence through at least most of the century. During a canvass of the statements of admission requirements in a number of colleges, the materials prescribed were found to approximate identity so closely as to seem to make it superfluous to do more than illustrate the situation by presenting data for two such institutions, Amherst and Yale.

Although no complete set of catalogues for either of these institutions was at hand at the time of making the study, it was possible to find a series for each sufficiently near to points a decade apart to afford a fairly satisfactory sequence for Amherst from 1835 and for Yale from 1822. The years of issue of the catalogues used in this portion of the study are shown at the heads of the columns in Tables XCV, XCVI, and XCVII, under the caption "Issue of Catalogue." It is needless, perhaps, to mention that A in these columns signifies Amherst, and Y, Yale.

What has been compiled in these tables is the data concerning the subjects or books in which these two colleges set examinations for entrance. Thus, to be admitted to Yale in 1822, the student was required to pass a satisfactory examination in Clark's *Introduction to the Making of Latin*. It was the not infrequent practice in the earlier half of the century thus to specify the textbook, although this practice tended to disappear in the later decades of the nineteenth century.

The requirements in Latin.—As the three tables are for the most part self-explanatory, little need be said concerning them, except to emphasize the facts of major significance. Latin grammar (see Table XCV) may be seen to have been an all but constant constituent of the prescriptions; doubtless, on account of its fundamental relationship to all advanced work in this subject, it is to be assumed where not mentioned. Sallust and Caesar (almost always his *Commentaries*) seem to vie for the place just

below Cicero in the sequence of Latin prescribed. The former, however, gives way to the latter near the end of the period under observation. Cicero's orations maintained their hold throughout, as did Virgil. The footnotes to this table show some tendency to abbreviate the requirements in these two authors toward the end of the century, whatever may have been the amount of work required in them at the beginning of the period. Ovid finds a required place late in the century; prosody is specially mentioned during the first half century in the Yale requirements, probably in later decades to be included in the examinations in Virgil. Efficiency in prose composition was insisted upon practically throughout.

There seems to have been no large measure of shifting in character or amount of Latin prescribed for admission during the period covered by the study. The *amount* at least at the opening seems to have been about the same as at the close, i.e., not far from the equivalent of four units as these are counted in recent years. Certainly this amount prescribed at the opening could not have exceeded the equivalent of four and one-half or five units. The work in this subject prescribed near the close of the century was four units in amount.

The requirements in Greek.—For the most part the entrance requirements in Greek (Table XCVI) show less persistency as to particular content than do those in Latin. As in the latter subject, the prescription of grammar was, of course, fairly constant throughout the period. The materials read, however, shifted in the earlier decades from portions of the *Greek Testament* and Dalzel's *Collecteana Graeca Minora* to the *Anabasis* and the *Iliad*. The examination in prose composition was not often set until late in the century.

An estimate based partly on optional equivalents occasionally proposed and also upon the fact that work in this language was universally begun by the student after the study of Latin was well under way, would put the number of units at somewhere between two and three. The number near the close of the century was three.

Requirements in other subjects.—The table presenting the facts concerning the other subjects prescribed for admission (XCVII) reveals far-reaching modifications both in character of content and in amount. The only subject prescribed by Yale in 1822 in addition to the work in the classic languages and literatures was arithmetic, a subject now regarded as appropriate to the elementary school and, except for those who pursue it as commercial arithmetic, restricted to that unit in our traditional 8-4 system of organization. By the middle of the next decade two more subjects now characteristically receiving their major emphases in elementary

TABLE XCV

The History of Requirements for Admission in Latin, Amherst and Yale

Materials Prescribed	Issue of Catalogue								
	Y, 1822	A, 1835 Y, 1834	A, 1841 Y, 1842	A, 1850 Y, 1850	A, 1858 Y, 1860	A, 1871 Y, 1870	A, 1879 Y, 1880	A, 1890 Y, 1890	Y, 1900
Clark's *Introduction to the Making of Latin*	Y	..	..	..	..	..	..	..	..
Leverett's *Latin Tutor*	..	A	..	..	..	..	..	..	..
Latin grammar	Y	Y	A, Y	A, Y	A, Y	A, Y[a]	A,[a] Y	Y	Y
Sallust	Y	Y	Y	Y	Y	..	..	..	..
Sallust or four books of Caesar (*Commentaries*)	..	A	A	A	A	Y	A, Y	..	..
Sallust or Allen's *Latin Selections*	..	..	..	..	..	A	..	..	..
Caesar's *Gallic War,* Books I-IV	..	..	..	..	..	..	..	A,[b] Y	..
Cicero's *Select Orations*	Y	A, Y	A, Y	A, Y	A	..	..	..	..
Cicero—seven orations	..	..	..	..	Y	A, Y	A, Y	..	..
Cicero—six orations	..	..	..	..	..	..	..	A, Y	Y
Ovid—*Metamorphosis*	..	..	..	..	..	..	..	Y	Y
Virgil	Y	A, Y	A, Y[c]	A, Y[c]	A, Y[d]	A,[e] Y[d]	A,[f] Y[d]	A,[g] Y[e]	Y[h]
Latin prosody	Y	Y	Y	Y	Y	..	..	..	..
Latin prose composition	..	Y	A, Y	A, Y	A, Y	A, Y	A, Y	Y	Y

[a] Including prosody.

[b] Or the equivalent amount of Caesar's *Civil War,* Cornelius Nepos, or Sallust.

[c] "The whole of Virgil."

[d] *Bucolics, Georgics,* and the first six books of the *Aeneid.*

[e] *Bucolics* and the first six books of the *Aeneid.*

[f] First six books of the *Aeneid; Bucolics,* and the first two *Georgics,* "or the same number of lines of Ovid."

[g] First six books of the *Aeneid.*

[h] First six books of the *Aeneid* and in addition the *Bucolics* or the eighth and ninth books of the *Aeneid.*

schools, viz., English grammar and geography,[1] were added to the entrance examinations. These three subjects persisted as requirements until near the close of the century, when they disappeared. The first subject in addition to the work in the ancient languages now typically of high school grade to make its appearance is what we now refer to as elementary algebra. This appearance must have taken place in the forties. In the passage of three decades more, the prescription in this subject had been extended to include essentially what we now designate as "advanced" or "higher" algebra. Before the extension last mentioned was made, plane geometry (or Euclid) had been prescribed, so that by the end of the nineteenth century, the equivalent of two and one-half units of supra-arithmetical mathematics was required. Upon the heels of algebra and geometry, as may be seen in the table, followed subject after subject, until at the end of the period, in addition to the prescriptions in the classics, there were those in algebra through quadratics, plane geometry, ancient history, French or German, and English literature.

These changes, put in quantitative terms and considering only work now regarded as appropriately of secondary school grade, constitute an increase from approximately seven to fourteen or fifteen units. In other words, the amount of work prescribed for admission to colleges was at least doubled during this period of three quarters of a century.

The increases in character and amount shown, although somewhat in accord with the changes that had taken place in secondary school programs of study during the same period, fail to do full justice to the real liberalization and extension represented in the change from the waning Latin grammar school of the early decades to the waxing modern high school of the later decades of the century. Many subjects had been made available for students in the latter which had found a place in high school programs without the encouragement of being listed in the prescriptions, e.g., the sciences, additional courses in history, etc., although many were *accepted* in limited amounts without being prescribed. Additional subjects not accepted for admission were also offered to high school students, certain of them significant for general training, others more peculiarly pertinent to occupational uses.

Epitome and conclusion.—(1) The history of requirements for admission to college during the last century shows an extension in *content* from work in the classical languages and literatures, supplemented by prescriptions in what are now characteristically elementary school subjects, to a much wider range of work, including with the classical materials, algebra, plane geometry, ancient history, modern foreign language, and English literature.

[1] Yale's catalogue reads, "Murray's *English Grammar*, and Morse's, Worcester's or Woodbridge's *Geography*, ..."

TABLE XCVI

The History of Requirements for Admission in Greek, Amherst and Yale

Materials Prescribed	Issue of Catalogue								
	Y, 1822	A, 1835 Y, 1834	A, 1841 Y, 1842	A, 1850 Y, 1850	A, 1858 Y, 1860	A, 1871 Y, 1870	A, 1879 Y, 1880	A, 1890 Y, 1890	Y, 1900
Greek grammar	Y	Y	A, Y	A, Y	A, Y	A, Y	A, Y	A, Y	Y
Greek reader	..	A	Y	A, Y	Y	Y[a]	..	..	..
Greek Testament	Y	A,[b] Y	A[c]	A[c]	..	..	..	..	..
Graeca Minora	Y	A, Y[b]	A	..	..	..	..	..	..
Xenophon's *Anabasis*	..	..	Y[d]	Y[d]	A,[e] Y[d]	A,[d] Y[d]	A,[f] Y[f]	A,[f] Y[f]	Y[f]
Homer's *Iliad*	..	..	..	..	A[g]	A[g]	A,[d] Y[f]	A,[d] Y[d]	Y[d]
Greek prose composition	..	..	..	..	A	..	A, Y	A, Y	Y

[a] May substitute four last books of *Anabasis* or four books of *Iliad*.

[b] May substitute Greek reader and the four Gospels.

[c] The four Gospels, Jacobs' *Reader*, or an equivalent.

[d] Three books.

[e] Amount not stated.

[f] Four books.

[g] Two books.

TABLE XCVII

The History of Requirements for Admission in Other Subjects, Amherst and Yale

Materials Prescribed	Issue of Catalogue								
	Y, 1822	A, 1835 Y, 1834	A, 1841 Y, 1842	A, 1850 Y, 1850	A, 1858 Y, 1860	A, 1871 Y, 1870	A, 1879 Y, 1880	A, 1890 Y, 1890	Y, 1900
Arithmetic	Y	A, Y	A, Y	A, Y[a]	A, Y[a]	A, Y[a]	A, Y[a]	A, Y[a]	..
English grammar	..	A, Y	A, Y	A, Y	A, Y	A, Y	A, Y	..	..
Geography	..	A, Y	Y	Y	Y	A,[b] Y	A,[b] Y	..	..
Algebra to quadratics	..	..	..	A, Y	A, Y	A, Y	A	..	..
Algebra through quadratics	..	..	..	..	..	..	Y	A, Y	Y
Euclid (first two books) or plane geometry	..	..	..	..	Y	A, Y	A, Y	A, Y	Y
Ancient (classical) geography	..	..	..	..	..	A	A	..	..
Roman history	..	..	..	..	..	..	Y	Y	Y
Greek history	..	..	..	..	..	..	..	Y	Y
Roman antiquities	..	..	..	..	..	..	A	..	..
Ancient history	..	..	..	..	..	..	..	A	..
French (elementary grammar)	..	..	..	..	..	..	A	..	..
French or German[c]	..	..	..	..	..	..	..	A, Y	Y
English literature	..	..	..	..	..	..	..	A	Y

[a] Higher arithmetic.

[b] Modern geography.

[c] So far as to translate at sight easy prose.

(2) During this period the *amount* required for admission increased from about 7 units of work now of secondary school grade to 14 or 14½ units, i.e., the requirements practically doubled. Putting this fact in another way, one may say that the amount of work was increased from what could be covered in two years to what would normally require about four years for completion.

(3) The increase in character and amount of material required is in approximate agreement with the typical difference in age of the college entrant, i.e., two years, as shown in the portion of this report immediately preceding.

(4) It is apparent that the student entering college near the close of the last century had had the equivalent at least of two more years of general and liberal training than had he who entered during the first few decades of the period under consideration.

CHAPTER XVII

THE DOWNWARD SHIFT OF THE MATERIALS OF THE COLLEGE CURRICULUM

Intimately related to the widening scope of entrance requirements is the downward shift of most of the subjects which have found place in the standard college curriculum during the last hundred years. This downward tendency becomes evident during even a brief examination of the curriculum of any one of our older colleges as set forth in the catalogues issued during any considerable period of years beginning with the early decades of the nineteenth century.

How the year-levels were studied.—To illustrate the tendency college subjects have had to drop to lower levels in which they were not formerly listed, Table XCVIII has been prepared. This table shows the college years in which each of a large number of subjects and courses appeared in succeeding decades during the period 1825 to 1920, as shown in the catalogues of three of our oldest and most estimable higher institutions, Amherst, Williams, and Yale. It is to be read as follows: in 1825, Cicero's *De Amicitia* was to be found in the sophomore year in one of these colleges, and in the junior year of another; in 1835, one of these three colleges listed this material to be pursued during the sophomore year, etc.

In interpreting the data presented the reader should bear in mind two other details of the method pursued in the work of tabulation: (1) if a subject is listed in the catalogue of any college for more than one year, the lowest year is the one reported in the table; (2) many courses during a few decades only have been omitted from the tabulation, because such short periods would not be likely to disclose tendencies of any dependable sort. A possible exception to this would be a host of advanced differentiations in sequence of elementary courses which are doubtless to some extent a result and a cause of the downward shift almost universally characteristic. Under (2) must be mentioned also omitting from the table all courses in history. These have undergone such frequent changes in character and content that no single course could be traced through more than a few decades. The work in history as a whole, however, also manifested the almost general tendency to shift to lower levels. It is also necessary to point out that wherever a less number of figures than three for any subject during any year appears, the absences are usually to be explained by the fact that the subject was not listed at all in one or more of the catalogues. In a few instances, it was impossible to decide just what portion of a subject or subject group was intended.

THE IN WHICH CERTAIN SUBJECTS APPEARED IN SUCCEEDING DECADES DURING THE PERIOD 1825-1920 AS SHOWN IN THE CATALOGUES OF AMHERST, WILLIAMS, AND YALE

GROUPS AND COURSES	YEARS OF ISSUE OF CATALOGUES EXAMINED										
	1825	1835	1845	1855	1865	1875	1885	1895	1905	1915	1920
I. LANGUAGE AND LITERATURE											
1. Cicero—*De Amicitia*	2, 3	2	1	1, 2	1	1	1, 1	1, 1, 2	1	1, 1	1
2. Homer	1, 3	1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1
3. Beginning French	3	2, 2, 3	2, 3, 3	2, 3, 3	2, 3, 3	2, 3, 3	2, 2	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1
4. Beginning German	.....	.....	3	2, 3, 3	3, 3	2, 3, 3	1, 2, 3	1, 1, 2	1, 1, 1	1, 1, 1	1, 1, 1
5. Beginning Spanish	.....	3	3	.....	.....	3	3	2	2, 2, 2	1, 2, 4	1, 1, 2
6. English grammar	1, 1	1, 1	1	1	.....	.....	.....	.....	.....	.....	.....
7. Rhetoric and composition	2, 2, 2	2, 2, 2	2, 2, 2	1, 2, 2	1, 2, 3	1, 1, 1	1, 1, 2	1, 1, 2	1, 1, 2	1, 1	1, 1
8. English literature	.....	.....	.....	.....	3, 4, 4	3, 4, 4	2, 3, 4	1, 3, 3	1, 2, 2	1, 1, 2	1, 1, 2
II. MATHEMATICS											
9. Arithmetic	1, 1, 1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
10. Elementary algebra	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1	1	1	.....	.....	.....	.....
11. Plane geometry	1, 1, 2	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1	.....	.....	.....
12. Trigonometry	2, 2, 2	2, 2, 2	2, 2, 2	2, 2, 2	1, 1, 2	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1	1, 1, 1
13. Analytic geometry	.....	.....	3	2, 2, 2	1, 2, 2	2, 2	2, 2	2, 2, 2	1, 2, 2	1, 1, 2	1, 1, 1
14. Calculus	.....	.....	.....	2, 3, 3	2, 3, 3	2, 3, 3	2, 3, 4	2, 2, 3	1, 2, 2	1, 2, 2	1, 2, 2
III. SCIENCE											
15. Physics or natural philosophy	3, 3	3, 3, 3	3, 3, 3	3, 3, 3	2, 3, 3	2, 3, 3	3, 3	2, 2, 3	1, 2, 2	1, 2, 2	1, 1, 2
16. General chemistry	3, 4	3, 3, 4	3, 3, 4	2, 4	3, 3, 3	2, 3, 4	2, 2, 4	2, 2, 3	1, 1, 2	1, 1, 2	1, 1, 2
17. Qualitative analysis	.....	.....	.....	.....	.....	.....	3	3, 3, 4	2, 2, 3	1, 2, 2	2, 2, 2
18. Quantitative analysis	.....	.....	.....	.....	.....	.....	.....	4, 4, 4	3, 4	3, 3, 4	2, 3, 4
19. Organic chemistry	.....	.....	.....	.....	.....	3	3	4, 4	2, 2, 4	1, 3	2, 3, 3
20. Zoology (or natural history)	4	3, 4, 4	3, 4, 4	4, 4, 4	3, 3, 4	2, 4, 4	2, 3, 3	3	2, 2	1, 2, 3	2
21. Geology	4	3, 4	4, 4	4, 4	3, 4, 4	4, 4, 4	3, 4, 4	3, 4, 4	3, 3, 3	2, 3, 3	2, 3
22. Astronomy	3	3, 3, 3	3, 3, 3	3, 3, 3	3, 3, 3	3, 3, 3	3, 3, 4	3, 3, 4	3, 3, 4	3, 3, 3	3, 3
IV. PHILOSOPHY											
23. Moral philosophy or ethics	4, 4	4, 4, 4	4, 4, 4	4, 4	4, 4, 4	4, 4, 4	4, 4, 4	3, 3, 4	3, 4	2	2
24. Logic	2, 4	2, 3, 4	2, 2, 4	2, 3	3, 3, 4	3, 4, 4	2, 3, 4	3, 3, 3	3	2, 2	.....
25. History of philosophy	.....	.....	.....	4	4	4, 4	4, 4, 4	4, 4, 4	2, 3, 4	2, 3, 4	2, 3, 3
26. Mental philosophy or psychology	4, 4	4, 4, 4	4, 4, 4	4, 4, 4	4, 4, 4	4, 4	3, 4	3, 3, 4	2, 3, 3	2, 3, 3	2, 2, 3
27. Economics (political economy)	4	4, 4, 4	3, 4, 4	3, 4, 4	3, 4, 4	3, 4, 4	3, 4, 4	3, 3, 4	2, 3, 3	2, 3, 3	2, 2, 3

I. *Languages and literature.*—In the ancient languages it was necessary only to illustrate for two authors the fairly constant place held throughout the period under consideration. The Latin classic used as an illustration, after dropping during the first two decades from a higher year, remains rather consistently in the freshman year. The situation for the Homeric writings differs only in that they experience no typical subsidence near the opening of the period. These Homeric materials were not always the same, as may be anticipated from what has already been shown as to the content of college entrance Greek through almost the same period of time.

The history of the year-places of beginning courses in the modern foreign languages presents a notable contrast with what has just been shown. Appearing in the group of catalogues canvassed as a junior subject in one college in 1825, either a sophomore or junior subject during the succeeding years, this course ends by being a first year subject during the early decades of the present century. Beginning German, although not finding a place in these colleges as soon as French, arrives in the freshman year at the same time with the former language. The data concerning Spanish are more scattered, but show the same downward movement.

The situation for English grammar differs in that it appears first as a freshman subject and, after a few decades, disappears, to find a place, as we have seen, in the secondary school below. Rhetoric and composition moves more slowly than the modern foreign languages, but drops, as concerns its first year of appearance, from the sophomore to the freshman year. English literature makes its appearance in the catalogues examined first in the sixties, dropping rather erratically, to be sure, but certainly to a predominantly first year position. What has been tabulated does not always mean the same course in all instances; the criterion has been that it must have been a course whose description indicates that a considerable amount of English literature was studied.

II. *Mathematics.*—The data presented touching this field do not cover all its divisions represented in higher institutions, partly because a full array was not deemed necessary and partly for reasons already given above. The downward trend is interesting for its consistency and its certainty. Arithmetic, listed for freshmen for a decade or two, disappeared to emerge, as we know, as an entrance requirement. Elementary algebra was a freshman subject until somewhat past the middle of the century, when it disappeared, being added in its turn to the mathematical portion of the requirements for admission. A similar fate, a bit more belated, awaited plane geometry. Trigonometry started as a sophomore and ended by being a freshman course, while analytic geometry and the calculus, appearing almost simultaneously near the middle of the century as second and third year courses, dropped to freshman and sophomore years.

III. *Science.*—For most of the courses in science, the drop is even more notable. Physics—"natural philosophy" in the earlier period—and general chemistry shift from junior and senior years, to a year-level predominantly freshman. The advanced differentiations of the latter subject, appearing as separate courses first in the seventies and eighties, drop to sophomore and junior levels primarily. Zoology, formerly known as "natural history," and geology drop approximately as far. Astronomy is the only subject which, in this group of colleges, seems to hold to the level first assigned it.

IV. *Philosophy.*—The group of subjects here included tend to retain, during many decades, the high year-level most of them first receive, but all give way in time to what seems to be the inevitable force. At the end of the period they are all predominantly sophomore or junior subjects.

The year-places of certain subjects in universities.—The description of the downward shift of subjects would not be complete without reference to the present year-place of some of these subjects in universities in which the colleges of liberal arts must render preprofessional service to those who cannot or will not devote as long a period to general and liberal training as is assumed by the colleges less willing to permit any accommodation that looks like a breakdown of the four-year liberal arts tradition. For this purpose an examination was made of the recent catalogues of a number of state universities to ascertain the year-places of the subjects numbered 17 to 27, inclusive, in Table XCVIII, with the following results: qualitative chemistry is listed usually as a sophomore subject, but is occasionally listed for freshmen; quantitative and organic chemistry are in all cases available for sophomores; zoology, geology, and astronomy are predominantly open to freshmen and only occasionally first open to sophomores. Thus, as concerns the courses in science, this evidence displays a drop even more extended than that shown in the table.

With the exception of that in the history of philosophy, which is predominantly listed as open to juniors, the courses numbered 23-27 are typically first available for sophomores with a little less of the hesitancy to lower them found in the last right-hand columns of Table XCVIII. In an occasional institution each of this group of courses, even the history of philosophy, is described as open to freshmen. In this group also we find some tendency to give these subjects a lower year-level in state universities, magnifying the shift downward as shown in the table.

The shift to the secondary school below.—It is obvious that the shift being described did not stop at the freshman college year. The sequel, the depression of course materials into secondary school curricula, has already been foreshadowed in the section describing the widening scope of college entrance requirements. It was there shown that, among others, the following subjects were, during the period from the early thirties to

the late nineties, added to the prescriptions in the ancient languages: English grammar, geography, algebra through quadratics, plane geometry, ancient history, French or German, and English literature. All of these were inheritances from college curricula. The first two named continued their downward shift until they reached the elementary school grades below the high school. All the others have found a place in the first two years of our typical four-year high school.

Nor does this complete the narrative of downward progress of courses formerly peculiar to college curricula. Not only did those courses appearing in the entrance requirements drop from the superior to the lower unit in the system; many others either accompanied or followed closely. Among these are rhetoric and composition; such courses in mathematics as solid geometry, trigonometry, and occasionally college algebra and analytic geometry; many of the general courses in science, as physics, chemistry, and those in biology; economics, sociology (as "social problems"), and several of the courses in history, such as American, English, European, etc. What a sound basis they have who refer to the high school as the "people's college," with so much of its course inherited from the institution of which it is the namesake!

Summary.—Except for the classics all important courses and subjects finding place in college curricula during any considerable period have shown a marked tendency to shift to lower levels. This shift has not stopped at the freshman year of college, but has continued into the secondary unit below, including both subjects prescribed for college entrance and a host of others not—at least not often—prescribed. This shift, again, as in the case of the increasing extent of college entrance requirements, is in harmony with the advancing age of the college entrant made evident in Chapter XV.

CHAPTER XVIII

A COMPARISON OF THE OLDER AND THE MORE RECENT TEXTBOOKS IN CERTAIN SUBJECTS

A study of the downward shift of college subjects could not be regarded as complete without some comparison of the courses typical in earlier portions of the period under consideration with those in operation at the present time. A partial comparison of this sort is here undertaken. Although the subjects to be included do not cover the entire range of college subjects, they may be regarded as representative. Those to be illustrated are the history of English literature, rhetoric and composition, plane geometry, physics, chemistry, general history, American history, and economics, with briefer references to a few other subjects.

Although not a fully adequate basis, textbooks in use during the respective portions of the period will be used in the comparison. The inadequacy rests in the fact that textbooks may not, and in some instances do not, fairly represent the courses in which they are used. If there is injustice in such a procedure, it is much more likely to operate against the more recent than against the older courses. It is common knowledge that the use of reference readings and library methods in teaching is much more frequently characteristic of present day instructors and courses than of earlier generations, not only in the college, but also in the secondary school. The infrequency of resort to library reading may be illustrated by quotation from a college catalogue published in the middle of the last century: "The College Library is open to the Senior and Junior classes the first Friday of the term and every Wednesday, to the Sophomore and Freshman classes every Saturday."[1]

The history of English literature.—This is a difficult course in which to make a comparison on the basis of textbooks only, because these texts usually, especially in the later decades, contain relatively small amounts of literature illustrative of the authors treated. Although other procedures are in use, it is now a common practice to resort to anthologies for most of these illustrative materials, the anthologies constituting the major reading requirements of the course. Despite the incompleteness of the comparison to be made, it is not without value.

One of the texts in the history of English literature used in the period when that course first made its appearance in college curricula is Spalding's.[2]

[1] *Catalogue of the Officers and Students of Williams College, for the Academic Year,* 1849-50.

[2] William Spalding, *The History of English Literature;* with an outline of the origin and growth of the English language. Illustrated with extracts. New York: D. Appleton & Co., 1853. 413 pp.

This is a volume of 413 pages of about 425 words each. A high school text in current use in a large number of high schools is Long's.[3] The latter contains 567 pages of 350 words each, or the equivalent of 466 pages of Spalding. It is thus apparent that the amount of content of the high school text, in use more frequently in the fourth year than elsewhere, exceeds that of the text of the sixties in the same field used by college juniors or seniors. The essential difference in *character* of content resides in the fact that the older college text includes about sixty pages on the history of the English language, whereas the modern high school text deals with this only incidentally.

An examination of the volumes discloses that the ratio between extent of discussion and illustration of authors is not vitally different. For instance, Spalding devoted 4.5 pages to Edmund Spenser, 3.4 being discussion, and 1.1 illustration from his works; while Long assigns 8.5 pages (in equivalents of Spalding's pages) to him, 6.6 of discussion, and 1.9 of illustration. Again, the former volume devotes 5.5 pages to Pope, 3.5 pages being discussion, the remainder illustration; whereas, the latter devotes 5 pages to this author, 4.2 of discussion, and .8 of illustration. Both manuals tend to place major emphasis upon discussion and less upon illustration. Moreover, they both aim to give attention to a large number of important writers, although it is to be anticipated that the lists of those regarded as most important may not coincide.

The level of difficulty seems not to be essentially higher in one of these texts than in the other. The introduction by Spalding of the materials on the history of the English language, which now usually still find a place as a special course in the college, seems not more difficult than the remainder of the text. Treatment of this as an item of primary concern is omitted from the high school text, less because of difficulty than because it is no longer regarded as deserving a major position in the courses in the history of English literature either in high school or college.

The high school text is, of course, much richer in content than is the older college text, owing largely to the extensive developments in content and method in the field represented since the days of the first appearance of such courses.

Briefly epitomized, and conservatively put, the comparison turns out favorable to the high school text, both as to extent and as to quality, despite the facts already pointed out, that the college course was characteristically for juniors and seniors, while the other is usually taken by high school seniors.

[3] William J. Long, *English Literature; Its History and Its Significance for the Life of the English-Speaking World.* A textbook for high schools. Boston: Ginn & Co. 1909. 567 pp.

Rhetoric and composition.—The comparison of the earlier college and more recent high school texts in this field is easily the most difficult encountered in all the work done in examining textbooks. The source of the difficulty is the profound character of the changes which the materials in this field have undergone, changes which themselves reflect faithfully the marked difference in chief purposes kept in mind for the work during the two periods under observation. This difference is partly reflected in the terms respectively used in these two periods, the two names at the opening of this paragraph.

The older course aimed at perfection in oral presentation, but stressed composition to some extent in order to attain the goal. Whately[4] was much the most frequently used textbook of the earlier period, being reported somewhere between the forties and seventies in Amherst, Bowdoin, Brown, Dartmouth, Harvard, and Yale. It is not an extended volume, having only 350 pages of text running about 225 words per page. The nature of its content is made clear by the titles of the four parts into which it was divided:

Part I. Of the Address to the Understanding, with a View to Produce Conviction
Part II. Of the Address to the Will, or Persuasion
Part III. Of Style
Part IV. Of Elocution or Delivery

The polished public speaker seems from this to have been almost the sole objective. If it were not for the fact that this is actually the precursor of present day courses in composition, there would be grounds for insisting that it be preferably compared with modern works in public speaking.

An old college text, used in Yale in the twenties and thirties, that more nearly prefigures current courses, is Jamieson.[5] It differs from Whately in that it contains almost fifty pages of grammar, emphasizes sentence structure, includes an extended classification and treatment of figures, and has a long section on poetry and versification. As a whole it includes a much more detailed and helpful content and a much larger portion pertinent to *writing* English than does Whately.

In so far as a difference in *amount* can signify anything in this field, it is worth noting that a textbook in wide use in high schools at the present

[4] Richard Whately, *Elements of Rhetoric.* London: John Murray. 1828. pp. xiv+391 (including an appendix of 33 pages and an index of 2 pages).

[5] Alexander Jamieson, *A Grammar of Rhetoric and Polite Literature; Comprehending the Principles of Language and Style, the Elements of Taste and Criticism; with rules for the Study of Composition and Eloquence; Illustrated by Appropriate Examples, Selected Chiefly from the British Classics, for the Use of Schools or Private Instruction.* The second American, from the last London edition. New Haven. 1821. pp. xviii+332.

time, Lewis and Hosic's *Practical English for High Schools,*[6] contains about fifty per cent more material than Whately, but not as much more than Jamieson. It is to be found in use in all years of the high school, but more frequently in the earlier years. It lays stress on training in writing and speaking, but much more heavily on the former. The detailed content and organization evidence vast strides of progress during the century since the publication of Whately and Jamieson. This content is suggested by the chapters into which it is divided, although the published titles are not here reproduced. After a chapter of introduction and review, the following are dealt with: paragraph-writing, the sentence, grammar, diction and spelling, punctuation and capitalization, narration, exposition, argumentation, letter-writing, and the use of periodicals.

Here again is a content more extended and more valuable than that formerly presented in college courses.

Plane geometry.—Results of a comparison of two texts, Playfair's *Euclid*[7] and Legendre's *Elements of Geometry,*[8] formerly used in colleges, and of another, Wentworth and Smith,[9] in general use today in high schools, will next be presented. The first of the two earlier books, in one edition or another, was used in freshman and sophomore classes in Amherst, Dartmouth, and Yale in periods ranging everywhere from the twenties to the seventies. The use of the second was begun somewhat later and extended to the seventies. The institutions reporting its use as a text at one time or another are Dartmouth, Bowdoin, Brown, and Harvard. It was found in use in at least one school as late as the eighties. It is common knowledge that this course is now predominantly a course for sophomores in high schools and that, therefore, the Wentworth and Smith text is used in that year.

The materials in plane geometry in Playfair are distributed to six books in the main text and one book in the "supplement." With these must be included, to make up the full requirement in plane geometry in college, almost forty pages of "notes" in explanation and amplification of these books. In the seven books are included 222 "problems" and "theorems," for all of which proofs are presented. As far as rapid scrutiny could discover, there were no exercises known today as "originals," nor applications for arithmetical or algebraic computation.

[6] William D. Lewis and James F. Hosic, *Practical English for High Schools.* New York: American Book Co. 1916. 415 pp.

[7] John Playfair, *Elements of Geometry; Containing the First Six Books of Euclid, with a Supplement on the Properties of the Circle, the Intersections of Planes, and the Geometry of Solids.* Boston: T. B. Wait & Sons. 1814.

[8] John Farrar, *Adrien Marie Legendre's Elements of Geometry. Translated from the French for the Uses of Students of the University of Cambridge, New England.* Second edition, corrected and enlarged. Cambridge: Hilliard & Metcalf. 1825.

[9] George Wentworth and David Eugene Smith, *Plane Geometry.* Boston: Ginn & Co. 1911. pp. vii+272.

Legendre presents plane geometry in a "First Part." The theorems and problems of this section total 147. As in Playfair, these are all fully demonstrated, there being no "original" proofs set for the student, nor computational problems. The organization of Legendre, however, is superior to that of Playfair.

Wentworth and Smith contains five books and an appendix. In it are to be found 142 propositions; 69 "exercises" consisting of a total of almost 900 computational problems and originals; not to mention over 100 corollaries which the student is required to work into the fabric of the course.

While the rough equivalence of the earlier college course and the later high school course in the sense that they deal with essentially the same type of material, is indubitable, it is almost as apparent that the latter is superior to the former as to extent of content, difficulty (as illustrated by the originals), and effectiveness of organization. The conclusions here arrived at are especially significant because we know that in the field of mathematics the texts represent the courses more faithfully than in almost any other subject.

Physics (or natural philosophy).—The volumes used in the comparison in this subject are Enfield's *Natural Philosophy,*[10] and Black and Davis' *Practical Physics.*[11] The former was used as a text in Amherst during the twenties; the latter is a popular high school text used sometimes by juniors, but usually by seniors in that unit of our system.

The content of the former is suggested in the titles of the "books":

Book I of Matter
Book II of Mechanics, or the Doctrine of Motion
Book III of Hydrostatics and Pneumatics
Book IV of Magnetism
Book V of Electricity
Book VI of Optics, or the Laws of Light and Vision

This content is presented in 223 pages of about 600 words each. The instruction is organized about a series of "propositions," the proof of which is often approached by methods not unlike those of geometry. There are in all 338 of these. Experiments, for the most part of a simple qualitative, but also sometimes of a quantitative, sort are scattered through the text. The treatment, though not difficult, is abstract and forbidding.

Black and Davis differs considerably from Enfield in chapter organization. The chief differences in content are the introduction of work on sound and much more material on electricity. The latter difference illustrates the many modifications and enrichments resulting from the rapid development of the science during the last hundred years and multiplied

[10] William Enfield, *Institutes of Natural Philosophy, Theoretical and Practical. With Some Corrections; Change in the Order of Branches.* Third American edition, with improvements. Boston: Cummings and Hilliard. 1820.

[11] N. Henry Black and Harvey N. Davis, *Practical Physics.* New York: Macmillan. 1913.

industrial applications of physical principles now available for introduction into courses. Without taking account of the laboratory manual accompanying Black and Davis, this text contains an amount of material equivalent to 278 pages of Enfield, i.e., a fourth more than the latter volume.

Although textbooks in the hands of students in colleges shortly after the period when Enfield was in use were more extended in content and more difficult in character, e.g., Lardner's *Handbook of Natural Philosophy* which was the text in Dartmouth and Harvard in the seventies, this old text cannot compare favorably with those used in modern high schools. Black and Davis is greater in amount of material, equals it in difficulty, and is almost incalculably superior in such liberalizing values as accrue from an understanding of the environment.

Chemistry.—Stöckhart's *Principles of Chemistry*[12] was in use as a text for freshmen and sophomores in Harvard in the fifties and sixties. In common with many other collegiate texts of this period and earlier it contains both inorganic and organic chemistry. There are slightly more than 425 pages of 300 words each of the former materials, and 220 of the latter. There were at this time no separate laboratory manuals, the experiments being introduced at suitable points throughout the text. The first 52 pages of the part assigned to inorganic chemistry are used to present certain preliminary materials, mostly physical. The content in inorganic chemistry is introduced under the following heads: non-metallic elements or metalloids, acids, light metals, and heavy metals. Two earlier textbooks—Webster's,[13] used by juniors in Amherst and Harvard in the twenties and thirties, and Turner's,[14] used by seniors in Dartmouth in the thirties—have in their inorganic portions much more content measured in total number of words than does Stöckhart, being approximately equivalent in this respect to current freshman college textbooks in this field.

Brownlee,[15] a popular modern text in chemistry to be found in use by high school juniors but more commonly by seniors, contains approximately as much material on inorganic as there is in Stöckhart, although strikingly less than Webster and Turner. There are two chapters with a total of 35 pages presenting materials of an elementary sort of organic chemistry. This text is accompanied by a laboratory manual which should be taken into con-

[12] Julius Adolph Stöckhart, *The Principles of Chemistry, Illustrated by Simple Experiments.* Translated from the third German edition by C. H. Pierce, M.D. Cambridge: John Bartlett. 1850.

[13] John W. Webster, *A Manual of Chemistry, on the Basis of Professor Brandes.* Boston: Richardson and Lord. 1826.

[14] Edward Turner, *Elements of Chemistry, Including the Recent Discoveries and Doctrines of the Science.* Fifth American, from the fifth London edition. With notes and emendations by Franklin Boche, M.D. Philadelphia: Desilver Thomas & Co. 1835.

[15] R. B. Brownlee, R. W. Fuller, William J. Hancock, M. D. Soñon, and J. E. Whitsit, *First Principles of Chemistry.* Revised edition. Boston: Allyn and Bacon. 1915.

sideration in any comparison with older college texts. The level of difficulty seems hardly less than that of these earlier texts.

Modern college texts, in use primarily by freshmen, deal almost exclusively with inorganic materials and compare very favorably as to amount and difficulty of content with the older college texts used by upperclassmen. Taking as an illustration Smith's *General Chemistry for Colleges,*[16] one of the most used of college textbooks, it is found to contain over 600 pages of about 400 words each, or the equivalent of 860 pages in Stöckhart. This is twice the extent of content in the latter book, leaving out of account the laboratory manual accompanying the Smith text. The level of difficulty seems fully as high as in any of the college texts formerly in use in junior and senior years. The vast difference in character of content growing out of the rapid developments during the century in the field represented, a difference to be found between the older college texts on the one hand and both high school and college textbooks of more recent imprint on the other, is so obvious as not to require more than mention.

The comparison of texts in this subject may be summarized by saying that the college textbooks used by juniors and seniors shortly after the opening of the period under consideration contain as much material on inorganic chemistry as do modern college texts in use by freshmen, and much more than current high school texts. The level of difficulty seems to show no marked tendency to shift in either direction, at least not as concerns college texts. Both college and high school texts of recent issue are much improved in character of content on account of the rapid strides in the science.

General history.—Because of the recent revival in modified form of the course in general history formerly a frequent offering in high school programs of study and the appearance in response to the movement of at least three texts for use in this course, it is possible to make the comparison of an older college textbook with one of these recent publications. The college text is Tytler's,[17] used in the twenties, thirties, and forties in Dartmouth, Harvard, and Yale, in the sophomore, freshman, and junior years, respectively. The modern high school text used as an illustration is Robinson, Breasted, and Smith, to be referred to here as Robinson.[18] The course in

[16] Alexander Smith, *General Chemistry for Colleges.* New York: Century Company. 1916.

[17] Alexander Fraser Tytler, *Elements of General History, Ancient and Modern, with a Continuation, Terminating at the Demise of King George III, 1820,* by Rev. Edward Nares, D.D., to which are added, a succinct history of the United States, an improved table of chronology; a comparative view of ancient and modern geography, and questions in each section. Concord, N.H.: Isaac Hill. 1823.

[18] James Harvey Robinson and James Henry Breasted (with the collaboration of Emma Peters Smith), *A General History of Europe, from the Origins of Civilization to the Present Time.* Boston: Ginn & Company. 1921.

which this volume is used is usually listed for high school sophomores. Excluding the separate section on the history of the United States and subsequent portions of the Tytler volume, such as a table of chronology, geographic materials, etc., there are left almost 500 pages with 525 words to the page. There are no maps nor illustrations. Excluding these materials, there are in Robinson the equivalent of about 400 of the Tytler pages, i.e., about four fifths as much material, when in the latter are retained about 25 pages of "History of the Jews" extracted almost entirely from the Old Testament.

Of the Tytler text when these materials on the Jews are omitted there are 125 pages dealing with the period up to, but not including, Charlemagne. The treatment of the same period in Robinson covers the equivalent of almost exactly the same number of pages. The treatment of the medieval and modern periods in Tytler extends through 375 pages, whereas in Robinson it covers the equivalent of about 280 Tytler pages, i.e., about three fourths as large an amount. This is an interesting difference in view of the additional century covered by Robinson. This does not, however, represent a profound difference in extent of recognition of the two periods.

The meager treatment characteristic of the Tytler text appears in the following quotation of that portion of the volume dealing with Peter the Great:

SECTION LXVI.—Of Peter the Great, Czar of Muscovy, and Charles XII, King of Sweden.

Two most illustrious men adorned the north of Europe in the latter part of the age of Lewis XIV, Peter the Great of Muscovy, and Charles XII of Sweden.

Then follows a preliminary paragraph of one hundred words on Russian beginnings:

2. Peter, the youngest son of the emperor Alexis, became master of the empire in 1689, by setting aside a weak elder brother, and banishing a factious sister, who had seized the government. He was uneducated, and his youth had been spent in debauchery; but his new situation immediately displayed his talents, and gave birth to the wisest plans for the improvement of a barbarous people. The army and navy demanded his first attention.

Two short sentences on this development are here omitted.

3. Having gained the little instruction which he possessed from foreigners, Peter resolved to travel in search of knowledge.

Tells in three sentences of travels and experiences in Germany, Holland, and England, and of his return.

4. Regiments were raised and trained to exercise on the German model; the finances arranged and systematized; the church reformed by new canons and regulations; the patriarchate abolished; and a much abused civil and criminal jurisdiction taken from the clergy.

One more sentence follows.[19]

The entire treatment of the illustrious Russian is limited to 250 words. In Robinson he receives about 450 words. Even this amount, taken in itself, is no generous recognition of his influence on Russia.

It is impossible in a brief statement of comparison to do justice to the difference between these two texts in the matter of the *nature* of their content. A rapid glance at them suffices to demonstrate the wide gap between them; a careful examination increases the appreciation of the superiority of the more recent high school text over the older college text. The incidental character of presentation in the latter, its provincial and almost naive moralizations, and its relative absence of matter of economic and social significance, place it at a distinct disadvantage in the comparison. Moreover, it seems not to be a whit more difficult of comprehension than Robinson, except on account of its piecemeal and ununified organization.

Considering that the difference in the amounts of material to be found in the textbooks is usually more than compensated for by the required reference readings in modern high school courses in history, the rough equivalence in difficulty, and the great advantage of the Robinson text over the Tytler in the character of content, we have here perhaps one of the most striking instances that can be found of the superiority of current high school courses over older college courses.

American history.—Eliot's *History of the United States*[20] was used as a textbook in a course open in the seventies to college seniors in Harvard. It is a small volume of about 500 pages, of which 480 are devoted to the text proper. The pages average 300 words each. The four parts into which the volume is divided are: Occupation, 1492-1638; English Dominion, 1638-1763; Independence, 1763-1797; Union, 1797-1872. It contains but four maps and is without illustrations or charts.

Muzzey,[21] a popular high school textbook used by juniors and seniors, has about fifty more pages than Eliot, but, because of the larger number of words per page, contains the equivalent of 680 pages of the latter, i.e., about 200 pages in excess. The period covered differs in the fact that Muzzey, of course, brings the history down to date, whereas Eliot stopped at 1872, approximately the date of its publication. Muzzey is profusely and effectively illustrated, and contains a much larger number of maps than Eliot.

[19] *Op. cit.* pp. 250-51.

[20] Samuel Eliot, *History of the United States from 1492 to 1872.* Revised edition. Boston: Brewer and Tileston. 1874.

[21] David Saville Muzzey, *An American History.* Revised edition. Boston: Ginn & Company. 1920.

Another major point of the superiority of Muzzey is in the nature of the content. For instance, Eliot stresses wars much more than does Muzzey. To the "War with Great Britain" the former devotes twenty-three pages, Muzzey giving only nine, or about twelve in Eliot equivalents. To the Revolutionary War, the former gives 51.3 pages, the latter assigning only about twenty-five in Eliot equivalents. Even this comparison does injustice to Muzzey, inasmuch as the latter, more than the former, seems to emphasize aspects of social significance rather than battles and military campaigns. Using less space on wars, Muzzey has better opportunity for laying emphasis on matters of economic and social import.

It is not out of place here to refer to the extent of content carried by a modern college text in American history, a course which is now typically offered to students in their sophomore year. A text in frequent use is Bassett.[22] It contains 850 pages with an average of almost 500 words per page. In terms of Eliot equivalents it contains between 1400 and 1450 pages, or three times as much material as that volume! At this the current college course in American history prescribes more reference reading than did the course of a half-century ago, and is two years lower down in the college classification, while the nature of the content is unqualifiedly superior. While the present day high school course does not typically require the extent of reading characteristic in colleges, it is nevertheless superior to what Eliot must have made possible both as to extent and nature of content.

Economics.—The last pair of texts to be compared are Wayland's *Elements of Political Economy*[23] and Thompson's *Elementary Economics*.[24] The former was used in the forties, fifties, and sixties by juniors and seniors—usually the latter—in Amherst, Brown, and Yale. The latter is a much-used high school text in courses for the most part open to seniors. The former contains 410 pages of materials with about 360 words per page. The latter about 400 pages with 325 words per page. In Wayland equivalents, Thompson includes about 360 pages, or slightly less than nine tenths as much.

The large subdivisions of the content of beginning courses in economics are present in both texts, although arranged in different order. These are production, exchange, distribution, and consumption. The high school text, being the more recent, incorporates certain improvements, such as utilizing more of the concrete findings of research in economic science and being somewhat more dominated by the viewpoint that the

[22] John Spencer Bassett, *A Short History of the United States.* New York: Macmillan. 1913.

[23] Francis Wayland, *The Elements of Political Economy.* Fourth edition. Boston: Gould and Lincoln. 1837.

[24] Charles Manfred Thompson, *Elementary Economics,* with special reference to social and business conditions in the United States. Chicago: Benjamin H. Sanborn & Company. 1919.

science is essentially social. On account of its concreteness it is more nearly within the comprehension of high school students than Wayland. The latter characteristic is doubtless partially the result of effort to make the materials comprehensible to immature minds. It is hardly to be expected that a course could remain unchanged in difficulty in lowering its place four years in the school system, even though students may have in the interim become older for the same classification.

Summary and conclusion.—Each of the comparisons made tells essentially the same story, that the subjects and courses during the process of depression to lower years in the system almost universal in collegiate materials of instruction have experienced no apparent dilution. On the other hand, in the group of courses considered, there are some, such as plane geometry and American history, which have been notably extended as to content and even strengthened as to difficulty during the period of downward trend. All of them, of course, are much enriched as to nature of content, and improved as instruments of education, i.e., in their pedagogical make-up. The improvements last named were inevitable in view of the multiplication of research in the fields represented and the length of the period of experience in presenting the materials to students.

What has been shown for these subjects could be duplicated, if space permitted, in other lines, e.g., in other sciences, in other of the social studies, etc. Analogous conclusions, for instance, would result from a comparison of Smellie's *Philosophy of Natural History*[25] used in Amherst and Harvard by juniors and seniors in the twenties and thirties or even Tenney's *Manual of Zoology,*[26] used as late as the seventies by seniors in Amherst, with modern college texts in this field used by freshmen, or even texts used by high school sophomores; or of Nuttall's *Introduction to Systematic and Physiological Botany,*[27] used by juniors in Amherst in the twenties, with some modern college or high school text in botany.

The only fields in which a comparison would show relatively less change—and even in these there have been modifications—is in the classics. Here there has at least been improvement pedagogically. On the other hand, because of the diminishing importance of these subjects in the secondary school, the materials regarded as appropriate to students in this lower unit have been moving upward in the system, in the direction opposite to that of most of the subjects of study. Greek of high school

[25] William Smellie, *The Philosophy of Natural History, with an Introduction and Various Additions and Alterations, Intended To Adapt It to the Present State of Knowledge,* by John Ware. M.D. Boston: Cummings, Hilliard & Co. 1824. viii+336 pp.

[26] Sanborn Tenney, *A Manual of Zoology for Schools, Colleges, and the General Reader.* New York: Charles Scribner & Company. 1865. xii+540 pp.

[27] Thomas Nuttall, *An Introduction to Systematic and Physiological Botany.* Cambridge, Mass.: Hill and Brown. 1827. xi+344 pp.

grade has long been available to college students, and Latin is now following her elder sister. In order to adapt it to students of more advanced age and state of training the common practice has been to cover more of the content in a given period, for instance, to compass Cicero's orations and the *Aeneid* in a single year, whereas in the high school two years are spent upon these materials.

Some of the extensive depression in undiluted and even in enhanced form almost universal in the fields of instruction must unquestionably have resulted from the development within each field already referred to. With the enlargement of the content resulting from investigations, differentiations and specializations were bound to make their appearance. Then came the desire to secure a recognition of these differentiations as advanced courses in the college curriculum. Before their introduction was feasible, it was necessary to lower the general or preliminary course far enough to make a place for the advanced differentiation.

Making all allowances for this development, the fact remains that the advancing age of the student for any given college year and the increasing extent of his training before arriving at that point made the downward shift of the materials in undiluted and even in enhanced form practicable as well as desirable.

CHAPTER XIX

THE CHANGING ORGANIZATION OF THE COLLEGE CURRICULUM

As there seemed to be ground for conjecture that there might be some relationship between the organization of curricula and the advancing age of the college student, an effort to note any changes in organization during the last hundred years was made and is reported here.

The changes illustrated in Amherst.—It was necessary to take recourse again for the most part to the catalogues of such colleges as have maintained existence as leading higher institutions during as much as a century. As it was not essential to know the exact year in which changes took place, the catalogues of every tenth year only were examined. What seems to have been a fairly representative history of curricular organization—that of Amherst—is first presented in sufficient detail to show just what the changes were from decade to decade:

1825: All work was prescribed.

1835: All work was prescribed.

1845: All work was prescribed.

1855: All work was prescribed, excepting (1) that the student in sophomore and junior years had the alternative of French or German, and (2) that in the senior year he was permitted to add Italian. This organization is reported in Table XCIX as "slightly optional."

1865: One of a total of four to six subjects was elective in all three terms of the junior year and in the first term of the senior year. This organization is also reported in the table as "slightly optional," although it represents more freedom of election than the organization for 1855.

1875: Very much as it was in 1865, except that there is a restricted option in one term of the second year. "Slightly optional."

1885: Four class hours per week elective during second and third terms of sophomore year; all but five or six hours elective throughout junior year; most of work elective in senior year. Characterized in table as "Much election."

1895: Almost all work in freshman year prescribed, the only option being French or German; only one hour prescribed in sophomore year, remainder elected within certain restrictions; eight hours of physics prescribed in junior year, remainder elective; three hours of debate and four of political ethics prescribed in senior year, remainder elective. Characterized in table as "largely elective."

1906: Similar to 1895, with more election.

1915: "All candidates for the Degree of Bachelor of Arts must complete forty semester courses which shall include one year of Mathematics, one year of English, one year of History or Philosophy, two years of Greek or Latin, and two years of science in the group Biology, Chemistry, Physics. In addition to the forty courses work is required in Public Speaking during the first two years and in Physical Education during the first three years." The student must also complete during the senior year two majors of six semester courses. Characterized in the table as "largely elective with major system."

TABLE XCIX

Organization of College Curricula 1825 to 1915

Date of Catalogue	Amherst	Bowdoin	Brown	Williams	Yale
1825[a]	Fully prescribed	Fully prescribed	Fully prescribed	Fully prescribed	Slightly optional in junior year
1835	Fully prescribed	Fully prescribed	Fully prescribed	Slightly optional in sophomore and junior years	Slightly optional in junior year
1845	Fully prescribed	Fully prescribed	Fully prescribed	Slightly optional in junior year	Slightly optional in junior year
1855	Slightly optional in sophomore, junior, and senior years	Slightly optional in junior year	Slightly optional in freshman, sophomore, and junior years	Slightly optional in junior year	Slightly optional in junior year
1865[b]	Slightly optional in junior and senior years	Slightly optional in junior year	Slightly optional in sophomore and junior years	Slightly optional in junior year	Slightly optional in junior year
1875	Slightly optional in sophomore, junior, and senior years	Slightly optional in junior year	Slightly optional in senior year	Slightly optional in junior year	Slightly optional in junior year
1885	Much election in last three years	Partly elective in last three years	Partly elective in last three years	Partly elective in senior year	Much election in junior and senior years
1895	Largely elective in last three years	Largely elective in last three years	Largely elective in last three years	Largely elective in last three years	Largely elective in last three years
1905[c]	Largely elective in last three years	Largely elective with major system	Largely elective	Largely elective with major system	Largely elective with major system
1915	Largely elective with major system	Largely elective with major system	Largely elective with major system[d]	Largely elective with major system	Largely elective with major system

[a] For Brown, 1827; for Williams, 1824.
[b] For Williams, 1863.
[c] For Amherst, 1906.
[d] For Ph.B.

Changes in five colleges compared.—Amherst was one of the first five colleges whose catalogues were examined for information on organization of curricula. The characterizations of the four remaining institutions are likewise introduced into the appropriate columns of Table XCIX. A little study of this table will show that the sequence of changes is essentially the same in all. They tend to proceed from "fully prescribed" to "slightly optional," then to "partly elective," next to "largely elective," and lastly to "largely elective with major system." "Partly elective" here signifies a stage somewhere between "slightly elective" and "much election." The only exception seems to be Yale, which begins the period with a "slightly optional" curriculum, but it is so slight as not to be a significant deviation.

All the five institutions have curricula "slightly optional" by 1855, either "partly elective" or with "much election" by 1885, "largely elective" by 1895, and "largely elective with major system" by 1915. They all manifest common tendencies.

Changes in other colleges.—Among the institutions whose catalogues were examined but data concerning which are not presented in the tabulation are Columbia, Dartmouth, Harvard, and Michigan. They show few notable differences from the tendencies already described, although there are minor variations. In Columbia in 1915 the student who desired to graduate "without honors" was required to present what were in effect two majors of eighteen "points" each. In 1895 Dartmouth administered its program in three courses, the "Classical," "Latin-Scientific," and "Chandler Scientific." The student selected one of these and was then allowed some election within it. By 1905 Dartmouth was following the "largely elective with major system" organization. Harvard seems to have opened up opportunities of election somewhat earlier than other colleges, arriving at a "largely elective" program two decades sooner. Michigan's curriculum in 1846 was fully prescribed. In 1875 her College of Science, Literature, and the Arts administered three curricula. She was the only one of the group here under consideration not prescribing majors by 1915, although her curriculum was largely elective.

Justifying the later changes.—Those who prepare the materials appearing in college catalogues do not often step aside from their customary task of description and exposition of the practices followed, but occasionally one finds at least an approach to justification of a modification of procedure, although in some instances it is explanation rather than justification which is intended. A few statements of this sort were found in the catalogues examined in this portion of the investigation and are here presented to illustrate the type of thinking at work while more recent changes were being made. At the point in the Amherst catalogue

for 1885-86[1] at which the largely elective organization of the curriculum is dealt with, is the following statement:

> For the first year and the first term of the second year the same studies are pursued by all the students. At the beginning of the second term of the sophomore year certain studies become elective, and these are afterwards increased in number, so that during the junior and senior years the student, under such regulations as the faculty find it wise to prescribe, can choose such studies as are best adapted to his own needs from nearly all the departments taught in the college. Excellent results have appeared from this method. The special wants of the student are thus met, his zest and progress in his work are increased, and his associations with his teachers becomes thus more close and intimate.

At an analogous point in a Yale catalogue we are informed that

> . . . . . the student is recommended to select his courses as far as possible according to his needs, in part perhaps according to his expectations as to future work, fixing first upon the chief subject and selecting others that are subsidiary to it.[2]

After the shift to the largely elective plan with major system, the catalogues for this institution contain the following:

> The general principles on which the rules governing the choice of courses are based are (1) that each student should do a considerable amount of connected graded work in some one group of studies and (2) that this specialization should not be carried so far as to exclude a reasonable amount of training in other groups of studies. To secure these objects, (1) a certain amount of continuity of work done in early years of the course is directly required, (2) the work of freshman and sophomore years is arranged in groups, of which each student must choose one, and (3) in junior and senior years each student must complete a major in some one group of studies, together with a minor in some related subject.[3]

These quotations indicate that the philosophy of college curriculum-making had undergone as far-reaching a change since the days of the fully prescribed type as had the curriculum itself. They demonstrate a partial recognition at least of the desirability of providing opportunity for specialization during the four-year college period.

Current curricular organizations in colleges.—Because of a misgiving that data concerning the organization of curricula in nine colleges in 1915-16, most of them in one section of the country only, might not be representative of colleges generally, the catalogues for 1920-21 or 1921-22 of over a hundred colleges were canvassed on the point of their having or not having the major system in operation. The institutions included in this larger number were selected at random from a long list of standard higher institutions. In order to have the study represent all sections adequately, it was necessary to use larger proportions of the colleges in sections in which the total number is relatively small. The results of the canvass of the catalogues are presented in Table C.

[1] Page 24.

[2] Catalogue, 1885-86, pp. 50-51.

[3] Catalogue, 1915-16, p. 167.

TABLE C

PLAN OF ORGANIZATION OF 114 CURRENT COLLEGE CURRICULA

PRACTICE FOLLOWED	GROUP OF STATES REPRESENTED					
	New England	Middle Atlantic	Southern	North Central	Western	Totals
1. Major selected at end of sophomore year	7	13	12	17	5	54
2. Major selected at end of freshman year	4	4	2	4	1	15
3. Major required, no time set for selection	3	7	4	8	3	25
4. Total requiring major	14	24	18	29	9	94
5. Student selects curriculum at entrance	1	8	1	1	..	11
6. No statement	1	3	4	..	1	9
TOTAL NUMBER OF COLLEGES CONSIDERED	16	35	23	30	10	114

It may be seen from this table (see right-hand column) that, of the total of 114 colleges included in the canvass, 54, or almost a half, require the selection of a major at the end of the sophomore year, 15 require this decision at the end of the freshman year, while 25 more require the completion of a major before graduation but do not specify the time at which the decision is to be made. This makes a total of 94, or 82.5 per cent, of all the 114 colleges which require the completion of a major.

A total of eleven colleges, most of them in the Middle Atlantic group, follow the plan of outlining separate curricula and requiring the student to select one of these at the time of admission. For nine others there is no statement of type. It may be assumed, however, that the major system is not in use in most of these.

As the major system always implies wide range of election, we are warranted in concluding that the "largely elective with major system" type is the one in almost universal use in the colleges of the country.

The meaning of the changes.—We have, thus, had a remarkable evolution in the type of college curriculum in use during the last hundred years, the chief characteristics of which have been a gradual progress from full prescription in the earlier decades to an approach to complete election toward the end of the nineteenth century. Out of the curricular chaos

that must have reigned at that time emerged the major system which requires specialization on the part of every student. In effect the progression constituted two aspects of a movement towards specialization, first, an *opportunity for,* and second, a *requirement of,* specialization.

This evolution was preceded and accompanied by related additional changes of profound significance, to some of which attention has previously been directed. Two of these are the multiplication of materials in each special field and the resulting differentiation of courses within it, the differentiations being offered as advanced courses and the general elementary subjects being forced downward in the system. Another is the advancing age of the college entrant and, in consequence of this, of the college student. These additional changes must have been potent factors in hastening the progress from the fully prescribed, to the largely elective, curriculum with the major system. While most of the change in age took place before 1875, as has been previously shown (Chapter XV), and although the most far-reaching changes in the plan of curriculum used came subsequently (see Table XCIX), it is to be expected that curricular changes would lag behind advancing age. The grip of tradition has always been known to prevent prompt accommodation of curricula to changing needs, and it is therefore not surprising that opportunity for, and subsequently, a requirement of, specialization should follow a few decades behind the change in age.

CHAPTER XX

THE FUNCTION OF THE MAJOR SUBJECT

I. The Occasion and Nature of the Study Reported

The occasion of the study.—The last chapter in its later portions having demonstrated the almost universal presence of the major system in present-day college curricula, it is desirable to inquire to some extent into the function of this part of the work required for graduation.

The method of ascertaining the function of the major.—In order to ascertain its function it was possible to approach at least two main groups of those concerned in the administration of the major system, the college authorities and teaching faculty on the one hand and those for whom it is administered on the other. The latter were decided upon as those who should be appealed to because it was felt that they would be in a somewhat better position than faculty members to state the reasons actually operative in selecting the major. Here again it was possible to appeal to those only recently making the selection or to those who had made it a few years back and who had for the most part had sufficient time to make occupational use of the majors taken, if there was to be such use. The possible additional light thrown on the problem by the latter relationship prompted the sending of the brief list of necessary questions to graduates of Beloit College whose names and addresses appeared in the last *Alumni Register*[1] of that institution and who were of the classes of 1917 to 1922.

The first question asked for the subject in which the student had taken his major. The second inquired simply after the reason for taking the major at the time it was decided upon. The few remaining questions were intended to locate influences that might be covered by a type of statement too general to be of value in determining motives in selection, and, without suggesting a response, to discover any occupational influences at the time of selection. One question also asked for a statement of any relationship of the major to activities since graduation.

A total of 181 usable responses were returned, 86 from men and 95 from women, a number large enough to be determinative for this college as well as for other institutions of its type.

II. The Relationships Found

Influences operative in the selection of major subjects.—The reasons given for the selection of the major subject are primarily three, (1) the bearing of the subject upon some occupational plan, (2) "interest" in the subject, and (3) esteem for the instructor giving most of the work in the

[1] *Alumni Register,* Beloit College, 1922.

major department decided upon. For the sake of brevity these will hereafter be referred to as the influences of occupation, interest, and instructor.

The frequency of operation of these and any other influences is shown in Table CI. As is to be expected, they operate in combination as well as singly. The chief operation in conjunction is in the case of occupation and interest, the proportion being especially large for women. In the latter instance, the occupation predominantly associated with interest is teaching.

TABLE CI

NUMBERS AND PERCENTAGES OF COLLEGE GRADUATES IN THE SELECTION OF WHOSE MAJOR SUBJECT OCCUPATIONS, INTEREST, INSTRUCTORS, AND OTHER FACTORS WERE INFLUENTIAL

Original Appearance Singly or Combination

INFLUENCE	MEN		WOMEN		TOTAL	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Occupation	41	47.8	12	12.6	53	29.3
Interest	13	15.1	13	13.7	26	14.4
Instructor	3	3.5	..	...	3	1.6
Occupation and interest	22	25.6	65	68.4	87	48.2
Occupation and instructor	2	2.2	1	1.1	3	1.6
Instructor, occupation, and interest	3	3.5	..	...	3	1.6
Interest and instructor	1	1.1	2	2.1	3	1.6
Occupation, interest, and parent's advice	1	1.1	..	...	1	0.5
No reason	..	...	2	2.1	2	1.1
TOTAL	86	99.9	95	100.0	181	99.9

To ascertain as far as possible the relative extent of influence of the three main reasons given, Table CII and Figure 55 have been prepared. The former presents the total number and percentage of cases in which each of the three reasons is given, either alone or in conjunction with others. The latter puts the proportions in graphic form.

TABLE CII

NUMBERS AND PERCENTAGES OF COLLEGE GRADUATES IN THE SELECTION OF WHOSE MAJOR SUBJECTS OCCUPATIONS, INTEREST, AND INSTRUCTORS WERE INFLUENTIAL

Total Frequency for Each Influence

INFLUENCE	MEN		WOMEN		TOTAL	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Occupation	69	80.2	78	82.1	147	81.2
Interest	39	45.3	80	84.2	119	65.7
Instructor	9	10.5	3	3.1	12	6.6

These methods of presentation make clear that occupation is by far the most influential factor in the selection of majors with men, but that it vies with interest in the case of women. *For each sex and for both this influence is a factor with fully four fifths of all graduates.* Less than half the men but more than four fifths of the women give interest in the subject as an influential factor. For all graduates the proportion is approximately two thirds. No large proportion either of men or women report being influenced in their selection by their esteem for instructors giving the work, although this influence may be larger than indicated by the responses made.

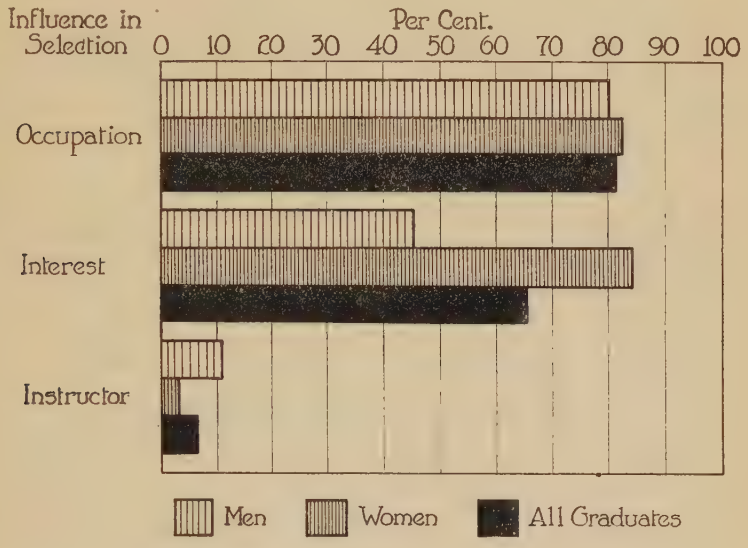

Figure 55

Percentages of college graduates in the selection of whose major subjects occupations, interest, and instructors were influential

It is probably gratuitous to point out that there should be no essential conflict between the two first factors of influence—that, in fact, there is no reason why they should not mutually reinforce each other. It is well known that occupational plans commonly operate to increase interest in a field where it might not otherwise exist, and interest in a subject is likewise often effective in determining choice of occupation.

Occupational use subsequent to graduation.—By means of a check of the occupational activities of the graduates since leaving college against the major subjects taken it was possible to compute the numbers and percentages of men and women who might be regarded as making occupational use of these majors. In this process of checking only obvious or accepted occupational relationships were taken into consideration, such as

teaching in the field of the major (by far the most frequent type of occupational use), entering some business occupation after having majored in economics, being a home maker after having majored in home economics, etc. In this count of occupational use were included those—more especially recent graduates—who were engaged in advanced study, graduate or professional, involving dependence upon the undergraduate major. Among these were students continuing their undergraduate majors as graduate majors, advanced students in engineering who had majored in mathematics or physics, students of medicine who had majored in biology, etc.

The proportion of men who thus made use of their major subjects was just a half of the total number; that for women, 71.6 per cent; and for all, 61.3 per cent. These proportions are considerably smaller than they would have been had not a group of members of the class of 1922 been included in the group studied. If these had been omitted, the proportion of those who had made occupational use as here considered would have mounted to fully two thirds of the entire group of graduates.

Totals of occupational relationships found.—Having ascertained the extent of occupational influence in the selection of the major and the proportion of occupational use subsequent to graduation, it was next in order to canvass for the same group of alumni the extent to which both these relationships obtained and either operated singly, or in conjunction, as well as the extent to which there was no occupational relationship whatever. In other words, the next step was to ascertain the numbers and proportions of graduates (1) who selected their majors with occupational bias and also made occupational use of them subsequently, (2) who selected their majors with occupational bias but did *not* subsequently make occupational use of them, (3) who made occupational use of them, but had not selected them with intention of using them occupationally, and (4) with whom there was neither occupational relationship. The results of this final canvass are given in Table CIII and Figure 56.

For almost a half of the men, for three fifths of the women, and for somewhat more than half of all graduates considered there were both the occupational influence in selection and subsequent occupational use. For approximately a third of the men, a fifth of the women, and a fourth of all alumni there was occupational influence in selection without subsequent occupational use. The numbers and percentages of those for whom there was occupational use only were small indeed. The graduates so far concerned include almost all considered, leaving, as may be seen, only small proportions without occupational relationships of some kind. In fact, the percentages for whom there was some sort of occupational relationship were, for men, women, and all graduates, 83.8, 93.7, and 88.9, respectively—well-nigh all considered in the study.

TABLE CIII

NUMBER AND PERCENTAGE OF GRADUATES INDICATING (1) BOTH OCCUPATIONAL INFLUENCE IN SELECTION AND OCCUPATIONAL USE OF MAJOR, (2) OCCUPATIONAL INFLUENCE IN SELECTION ONLY, (3) OCCUPATIONAL USE ONLY, AND (4) NO OCCUPATIONAL RELATIONSHIP

RELATIONSHIP	MEN		WOMEN		TOTAL	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Occupational influence in selection and use	49	46.5	57	60.0	97	53.6
Occupational influence in selection only	29	33.8	21	22.1	50	27.6
Occupational use only	3	3.5	11	11.6	14	7.7
No occupational relationship	14	16.2	6	6.3	20	11.1
TOTALS	86	100.0	95	100.0	181	100.0

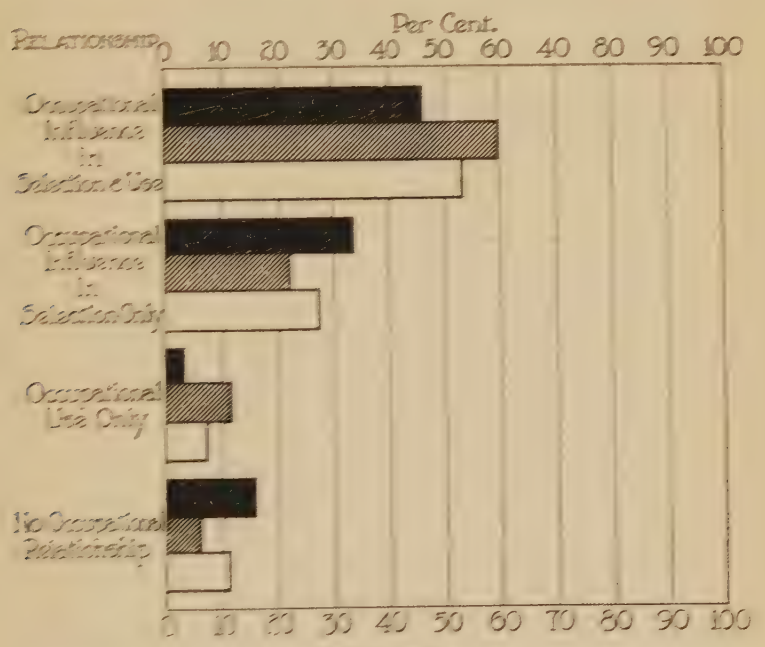
Per Cent.
RELATIONSHIP
0 10 20 30 40 50 60 40 80 90 100
Occupational Influence in Selection & Use
Occupational Influence in Selection Only
Occupational Use Only
No Occupational Relationship
0 10 20 30 40 50 60 70 80 90 100

Figure 56

Percentages of college graduates indicating (1) both occupational influence in selection and occupational use of major, (2) occupational influence in selection only, (3) occupational use only, and (4) no occupational relationship (black, men; shaded, women; in outline, all graduates)

III. Concluding Comment

There is no escape from the inference that, for this group of college graduates, the occupational function of the major was the paramount one. This function appears both at the time of selecting the major and in the use made of it subsequently to the completion of the college course. It is not impossible that what has been shown for Beloit may not be true of all other estimable colleges, but there is little ground for doubt that there would not be a large proportion of exceptions. At best, the difference could be only one of degree—hardly one of kind. Thus, the system which emerged from the curricular chaos of a quarter of a century ago is not merely a recognition of the need for specialization; to the student it is pre-eminently an opportunity for occupational specialization, or, at least, the beginning of such an opportunity. This occupational function of the major is also in line with the greater maturity of college students in these upper years as compared with their ages a century ago.

CHAPTER XXI

THE OCCUPATIONAL DESTINATION OF COLLEGE GRADUATES

Problem, materials, and method.—Inasmuch as the data presented touching the basis of selection and the function of the major now almost universally required for college graduation indicate a large occupational bearing, it will not be out of place to present next, information concerning the occupational destinations of college graduates. As the question is particularly apposite to the graduates of separate colleges of liberal arts, i.e., those unconnected with large universities where opportunities for occupational training are presumed to be afforded, findings of a study concerning these only are presented.

The colleges, the occupations of whose graduates have been incorporated in the tabulation reported, are: Beloit, Bryn Mawr, Carleton, Elon, Gustavus Adolphus, Heidelberg, Luther, Macalester, Mississippi, Missouri Valley, Monmouth, Mount Union, Pacific, Parsons, Penn, Ripon, Rockford, Reed, and Whittier—nineteen in all, representing many sections of the country. These colleges were included because they publish, either as a part of the annual catalogue or in a separate "alumni register," the information essential to the study—name, year of classification, and occupation. The publications in which the data appear were supplied by the registrars of these colleges in response to a request directed to them among a large number of college registrars asking them to send copies of such lists if available. Although materials came in from a larger number of colleges than here represented, for one reason or another only nineteen could be used. The most influential of these reasons was the desirability of having data for each college for a class recently graduated and also for a class graduating ten years before. Also, in the instances of some of the lists there was no effort to supply the information concerning occupations. For one of these colleges the more recent group of graduates concerning whom information was used was the class of 1915; for another it was the class of 1918; for six, the class of 1919; for eight, the class of 1920; and for three, the class of 1921. Correspondingly, the classes ten years out were of the following years: 1905, one college; 1908, one; 1909, five; 1910, eight; 1911, three. In the case of Reed, a college of relatively recent establishment, there was no class "ten years out."

TABLE CIV

NUMBERS AND PERCENTAGES OF COLLEGE GRADUATES IN CERTAIN OCCUPATIONAL GROUPS ONE YEAR AND TEN YEARS OUT OF COLLEGE

CLASSIFICATION	ONE YEAR OUT						TEN YEARS OUT					
	Men		Women		Both		Men		Women		Both	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
I. EDUCATION	105	44.3	242	71.8	347	60.5	50	24.9	51	23.9	101	24.4
High school teacher	46	19.4	133	39.5	179	31.2	6	3.0	22	10.3	28	6.8
"Teacher"	24	10.1	90	26.7	114	19.9	9	4.5	18	8.5	27	6.5
Principal	19	8.0	8	2.4	27	4.7	7	3.5	4	1.9	11	2.7
College or university	7	3.0	4	1.2	11	1.9	16	8.0	6	2.8	22	5.3
Superintendent	8	3.4	...	...	8	1.4	12	6.0	1	0.5	13	3.1
Grades	1	0.4	7	2.1	8	1.4	...	...	...	...	...	...
II. HOME-MAKING	...	...	18	5.3	18	3.1	...	...	119	55.9	119	28.7
III. OTHER OCCUPATIONS	62	26.2	35	10.4	97	16.9	150	74.6	41	19.2	191	46.1
Business	27	11.4	1	0.3	28	4.9	36	17.9	1	0.5	37	8.9
Ministry	6	2.5	...	...	6	1.0	41	20.4	1	0.5	42	10.1
Clerical and secretarial	4	1.7	14	4.2	18	3.1	3	1.5	10	4.7	13	3.1
Banking	6	2.5	1	0.3	7	1.2	9	4.5	2	0.9	11	2.7
Medicine	...	...	...	...	...	...	13	6.5	4	1.9	17	4.1
Agriculture	3	1.3	1	0.3	4	0.7	9	4.5	2	0.9	11	2.7
Scientific work	3	1.3	5	1.5	5	0.9	5	2.5	2	0.9	7	1.6
Missionaries	3	1.3	...	...	3	0.5	7	3.5	4	1.9	11	2.7
Law	...	...	...	...	...	...	14	7.0	...	...	14	3.4
Social service	1	0.4	3	0.9	4	0.7	3	1.5	6	2.8	9	2.2
Library	...	...	4	1.2	4	0.7	...	...	5	2.3	5	1.2
Journalism	4	1.7	1	0.3	5	0.9	2	1.0	1	0.5	3	0.7
Y.M.C.A., Y.W.C.A.	3	1.3	2	0.6	5	0.9	1	0.5	2	0.9	3	0.7
Industry	1	0.4	...	...	1	0.2	5	2.5	...	...	5	1.2
Music, art	1	0.4	1	0.3	2	0.3	...	...	...	...	...	...
Nursing	...	...	1	0.3	1	0.2	...	...	...	...	...	...
Miscellaneous	...	...	1	0.3	1	0.2	2	1.0	1	0.5	...	...

IV. Advanced Study	70	29.5	42	12.5	112	19.5	1	0.5	2	0.9	3	0.7
"Student"	30	12.7	23	6.8	53	9.2	...	...	...	...	...	...
Theology	15	6.3	1	0.3	16	2.8	...	...	...	...	...	...
Medicine	7	3.0	5	1.5	12	2.1	1	0.5	1	0.5	2	0.5
Law	5	2.1	1	0.3	6	1.0	...	...	...	...	...	...
Business	4	1.7	...	...	4	0.7	...	...	...	...	...	...
Chemistry	2	0.8	1	0.3	3	0.5	...	...	...	...	...	...
Education	...	...	3	0.9	3	0.5	...	...	...	...	...	...
Physical education	1	0.4	2	0.6	3	0.5	...	...	...	...	...	...
Language	...	...	2	0.6	2	0.3	...	...	1	0.5	1	0.2
Social science	2	0.8	...	...	2	0.3	...	...	...	...	...	...
Economics	1	0.4	...	...	1	0.2	...	...	...	...	...	...
English	1	0.4	...	...	1	0.2	...	...	...	...	...	...
Miscellaneous	2	0.8	4	1.2	6	1.0	...	...	...	...	...	...
Total Designated	237	...	337	...	574	...	201	...	213	...	414	...
Undesignated	59	...	99	...	158	...	13	...	38	...	51	...
Deceased	...	...	...	...	...	...	6	...	12	...	18	...
Grand Total	296	...	436	...	732	...	220	...	363	...	483	...

In the rosters of graduates included were a total of 1215 persons—516 men and 699 women. As 72 men and 137 women were undesignated as to occupations and 6 men and 12 women were deceased (all in the group out ten years), the number included in the occupational distribution presented was 988—almost a thousand. The distribution of these by sex and by the length of the period since graduation (one year out and ten years out) is shown at the appropriate point near the foot of Table CIV.

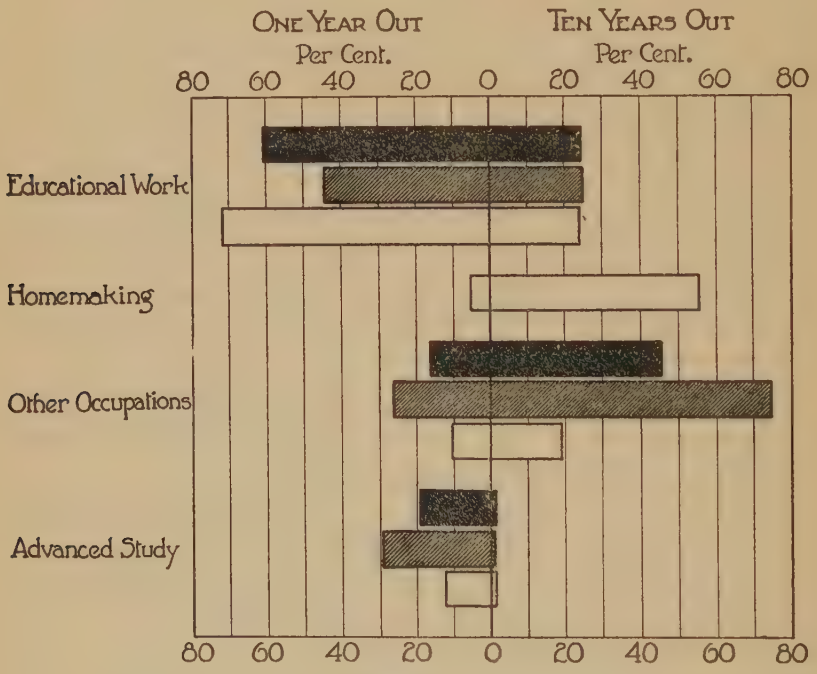

Figure 57

Percentages of college graduates in certain occupational groups one year and ten years out of college (black, all graduates; shaded. men; in outline, women)

Frequencies to some extent different from those presented might have resulted from the selection for comparison of certain groups of institutions, e.g., the eastern women's, eastern men's, and mid-western coeducational colleges, if data from a sufficiently large number had been easily accessible. It is, nevertheless, doubtful whether anything not represented in the findings as shown would have been discovered.

This description of the procedure followed makes clear that identical persons are not involved in the comparisons: they are of different classes nine years apart. As they concern, in all but a single instance, the same institutions represented by classes between whose dates of graduation

almost a decade intervened, and as the numbers of graduates included are large, the results of the study could not be vitally different if the occupations of the same persons had been studied one year and ten years after graduation.

The salient facts of the distributions.—Turning attention now to the large groups of occupations listed in Table CIV and in the accompanying figure, we are in a position to point out the following facts:

1. For those who were but one year out the predominant occupation is of an educational sort, and for most of these it is teaching of one kind or another. *This group includes more than three fifths of the total number of graduates, almost half of all the men, and almost three fourths of all the women.* Therefore, *in terms of the first years of service of their graduates, these colleges must be looked upon primarily as teacher-training institutions.*

2. After ten years out the proportions of those who are still in educational work, both of men and women, have been materially reduced. *The shrinkage is much more marked for women than for men. By the end of the ten-year period this group still includes approximately a fourth of all the graduates, the percentages of men and women being almost identical.* The teacher-training function of the college does not here loom so large as formerly, but it is still an occupational interest of major proportions.

3. The proportion of women who are home makers by the end of the first year out is not large, but it experiences huge accretions in the period of nine years. By this time *those engaged in home-making include from a half to three fifths of the total number of women graduated.*

4. The "other occupations" begin with a moderate percentage of the total number of men and women—about a sixth of the whole, in fact—but increase to nearly half by the end of the first decade out of college. The proportions of men are larger than those for women in both periods, attaining three fourths of all in the later period, well-nigh trebling the original percentage. The percentage for women begins at 10.4 and ends the decade by being 19.2.

5. Advanced study—graduate or professional—in the first year after graduation engages the interests of about a fifth of the whole. The percentage of men is more than twice that of women. As almost no one is found in this group after the passage of a decade, we may assume that, for all practical purposes, the period of study has by this time usually been completed.

6. The shifts during the intervening period seem to be (a) for men from education and advanced study into other occupations and (b) for women from teaching into home-making. Graduates of both sexes appear to use educational work as a stepping-stone.

The particular lines classified under the larger groupings also have their points of significance, some of which deserve special mention:

7. In the education group of those one year out the largest single number of both men and women are employed as high school teachers or "teachers." Most of the latter may be understood to be engaged in high school teaching. The next largest proportion are principals, more among these being men than women. There are also some superintendents and college and university teachers among those of both sexes. The interesting fact for men ten years out is that most of them who are still in educational work are superintendents, principals, and teachers in colleges and universities. The same type of change does not take place with the women, as most of those who remain in educational work are still teaching in high school.

8. In the "other occupations" group among the men one year out the largest single number are in "business employments." If to these are added those in banks, there is a total of 13.9 per cent who classify in the business group when broadly defined. The next largest group is in the ministry. Each of these groups is considerably augmented by the end of the tenth year, business (with banking) including 22.4 per cent, or midway between a fifth and a fourth of all men. The ministry by this time gives occupation to a full fifth. The increase has doubtless been recruited from the theological schools, just as the increased numbers of lawyers and physicians have come from those seen under Group IV to be enrolled in professional schools of law and medicine. Except for a smaller group in agriculture, the remaining distribution is scattered.

9. The only appreciable proportion of women graduates one year out in Group III is to be found in clerical and secretarial employments. This classification holds its own after the passage of nine more years, while a few other occupations come at least into partial prominence as appropriate for college women, viz., library, medicine, and social service. If to the group last named are added those in work not wholly unallied, i.e., missionary activity and Y.W.C.A., the total in these lines becomes 5.6 per cent.

10. There is little need to do more than has been done in the description of Group IV, except to point to the wide variety of advanced training sought by college men and women in the first years out. It includes the usual professional lines and certain academic specialties as well.

Summary and significance.—Put briefly, it may be said that for (a) the men among these college graduates the occupational destinations are during early years out, (1) educational work with emphasis on high school teaching, and (2) business, including banking. During the passage of the first decade, there is some reduction in the proportion of those engaged in educational work but also a substitution in many instances of (3) admin-

istrative work in education and (4) college and university instruction, a shift toward (5) the business group, and, with the assistance of training subsequent to college graduation, entrance upon other professions, as (6) law, (7) medicine, and (8) the ministry. The last profession named is entered only occasionally except for colleges on strong denominational foundations.

For (b) women, there is a much larger extent of focalization of destination. Beginning with (1) high school teaching in the majority of cases, with much smaller proportions in (2) home-making and (3) secretarial lines, the greatest single shift during a decade is toward home-making. Other occupations attracting women to a somewhat larger extent by the end of the decade than earlier are (4) library work, (5) medicine, and (6) a larger group made up of social service, and Y.W.C.A. and missionary activities. The field markedly common to both men and women graduates is education and there is some differentiation of function between the two groups in the course of time by the shift of the former in larger proportions to administrative positions.

In view of the advancing age of the college student and the adjustment in the direction of specialization growing out of this and the downward shift of the materials of general education, the college may well give serious consideration to a larger extent of occupationalization of its upper years than has been characteristic of it to date. In the chapter immediately preceding were found the evidences of a marked movement in this direction. Data of the sort presented here are testimony that the pace toward professionalization demands quickening. Touching educational work, which is an occupation common to both sexes and the predominant one into which these college graduates as a group go, colleges should either face squarely their obligation or retire from the field. Their present attitude is now too much one of assuming teacher-training as a by-product, a function incidental to the process of liberal education. An illustration of this attitude is the fact that some of these separate colleges balk at recognizing for credit as much of applied work as a few hours of practice teaching. With the rapidly accumulating developments in the technical aspects of education, it becomes increasingly imperative to make them a part of the professional equipment of the teacher previous to his entrance upon the work. To do this with the usual staff and facilities to be found in many of these colleges is quite impossible. The field of education with which high school teachers-in-training must be brought in contact is too wide for one man or a part of one man, himself often untrained in the field, to be able to present effectively. Then, too, this half-hearted approach to professionalization permits college teachers of subjects represented in the high school, many of whom know little or nothing of the present secondary school situation and care even less, to present the courses in special technique, e.g., courses

in the teaching of English, mathematics, etc. Moreover, these institutions are frequently without facilities for practice teaching, the recent demise of the preparatory schools formerly connected with them leaving them at the mercy of a critical public in the communities of their location. In the fact of these obstructions of attitude and inadequacy of facilities there are grounds for scouting the expectation that many of them will ever be able to assume the obligation we have seen to rest upon them. While some colleges are doubtless making rapid strides in the right direction, for most of them it will require reforms that to the usual faculty group in control at the present time will seem too revolutionary to be permissible.

If obstructing attitudes of college authorities can be overcome, professional training in other predominant lines seems more nearly feasible. This would be true of the business field and of home-making, and also of the preprofessional portions of training for those occupations which are to be entered only after more protracted periods in higher institutions, viz., law, medicine, and the ministry. It should not be impossible, furthermore, for colleges to develop professional specialties along some of the lines less frequently found in the distributions, such as library training, social service, journalism, etc.

The shift of women from teaching work to home-making must receive serious consideration in planning training for them. Here we are face to face with the problem perennially recurring in discussing education for this sex, her preparation for two lines of professional service, one likely to be temporary, the other likely to be permanent. In the face of this double responsibility, the typical postponement of all professional work for women during the full period of collegiate education seems decidedly out of place. The facts cited indicate that the college could not go far wrong in giving the majority of young women occupational training both for home-making *and* for teaching. It would be more reasonable, however, to open up additional opportunities for professional training in wider variety for the field which is likely to be the temporary one. And this double responsibility urges that the beginning of professionalization of women's training be not postponed long after the opening of the senior college period.

In fact, there is little or nothing in the study which has just been reported, nor in the materials so far presented in Part III, to warrant us in delaying occupationalization of training beyond the opening of the senior college period.

CHAPTER XXII

CURRENT READJUSTMENTS IN HIGHER INSTITUTIONS

I. Accommodations within the Liberal Arts College Involving Abbreviation of the Four-Year Period of Liberal Training

Problem and method.—The major system is not the only evidence we have of inroads upon our former four-year period of liberal college education. One who examines any considerable number of catalogues of recent issue and compares them with those issued during an earlier period will find another frequent difference in the accommodations which are in the nature of a compromise on the length of the liberal curriculum, liberal here being used in the sense of non-occupational or unapplied. As the nature of the modifications referred to here can best be made clear by reporting them directly, this will be set forth after only a brief word on the method of canvass pursued.

The catalogues of 227 colleges were scrutinized for evidences of the sort to be reported. These were all of recent issue, but not of the same year. Most of them were those published for use in 1921-22, but some were of 1920-21. Except for the fact that all universities and technical schools were excluded from consideration and that the bulk of the colleges were on the list issued by the American Council of Education, no principles of selection were operative. The aim in making up the number of institutions to be included was to obtain a list of colleges as nearly all of the "small college" type as possible. They represent all sections of the country.

The procedure in the canvass was simply to run through the catalogue of each college, searching for evidences of accommodation on the part of the institution to the desire for a shortened period of liberal, in the sense of non-occupational, training.

The types of accommodation found.—The types of accommodation classify under six main heads, with a seventh additional modification having something in common with the others, but sufficiently distinct and conservative to raise the question of the appropriateness of including it with them. These types are as follows:

1. Affiliation with universities to give combination arts-professional curricula, with the first three years in attendance at the college.

2. Arrangement to give the Bachelor's degree for two or three years in the college and (a) the fourth year in a technical or professional school elsewhere or (b) the completion of a technical or professional curriculum elsewhere.

3. Outlined preprofessional curricula two or three years in length without university affiliation.

4. Four-year curricula outlined or quite clearly suggested aiming at complete training for certain professions or at considerable training definitely professional, in addition to foundational liberal training.

5. Professional names in titles of departments.

6. Professional courses listed in departments with ordinary liberal arts titles.

7. Recognition without substantial accommodation. Each of the types will next be more fully described and its frequency of appearance indicated.

1. *Affiliation with universities.*—The statements of this sort refer to combination arts-professional curricula in seven lines, the combinations appearing with the following frequencies:

Arts-agriculture	11
Arts-business	4
Arts-engineering	16
Arts-law	12
Arts-medicine	20
Arts-nursing	2
Arts-theology	1
Total	66

In the instances of forty-one of the sixty-six of these curricula, the university of affiliation is named; in the remainder this is not done. A total of thirty-one different colleges are represented in accommodations of this type. In the group of colleges considered we have, therefore, almost fourteen per cent ready to concede a full year on the four-year period, not to mention the proportion of the three preceding years which is assigned because of its occupational bent.

2. *Arrangements to give Bachelors' degrees when later portions of the four-year period are spent in professional or technical schools elsewhere.*—Closely allied with the first type are the arrangements for giving the first degree for two or three years of residence in a college under consideration and (a) the fourth year taken in a professional or technical school or (b) the completion of a professional or technical curriculum elsewhere. Forty of the colleges follow the former procedure, eleven the latter. As three of them open up both these subtypes of opportunity, a total of forty-eight different institutions, or twenty-one per cent, follow practices classed under this main head, and concede a year or more of the four-year curriculum to occupationalization.

3. *Preprofessional curricula without announced affiliation.*—The colleges included offer a large number and wide variety of preprofessional

curricula two and three years in length. The frequencies for each occupational group are:

Agriculture	8
Business	5
Dentistry[1]	3
Engineering[2]	24
Journalism, forestry, theology, etc.	5
Law	13
Medicine	63
Nursing	2
Total	123

Those most commonly offered are seen to be preliminary to medicine, engineering, and law. Most of these curricula, seventy-five in fact, are two years in length, twenty-nine are three years in length, in nineteen instances there are both two- and three-year preprofessional curricula. A total of seventy-four, or a shade less than a third of the total number of all the colleges, publish such curricula.

4. *Four-year professional curricula.*—A total of seventy-nine four-year curricula also are offered in these colleges with the following frequency for each occupational group concerned:

Agriculture	1
Forestry	1
Applied arts	1
Business administration	20
Secretarial	2
Journalism	1
Engineering	14
Industrial mechanics	1
Home economics	33
Law	2
Medicine	2
Public health	1
Total	79

Some of these curricula, such as in business administration, aim to give complete professional training; others give only partial professional preparation, e.g., engineering, medicine, and law; but all constitute occupational concessions on the four-year collegiate period of liberal education. A total of sixty-one different colleges, or twenty-seven per cent, list courses of this sort.

[1] One of these is a one-year pre-dental curriculum.

[2] At least five of these curricula contain considerable professional materials.

5. *Professional names in titles of departments.*—Another evidence of professional differentiation in these colleges is to be found in the frequency of appearance of professional names in the titles of departments. The search for these in the catalogues resulted in the following array:

Agriculture	8
Forestry	1
Business administration or commerce	37
Secretarial work	6
Journalism	3
Library	2
Engineering	30
Industrial mechanics	4
Applied mathematics	3
Home economics	90
Law	5
Public health	1
Total	190

The departments of education have been omitted from consideration, although there are some valid grounds for including them.

The actual amount of occupational content offered in the departments listed varies widely, some containing only a few courses of an applied sort, others including extensive portions. The exception to this is the field of home economics, in which the nine colleges offering a few "practical" courses only were excluded from the tabulation. The appearance of the titles and the extent of work offered, however, in all instances warrant the conclusion that here are accommodations to the desire or need, or what is assumed to be the desire or need, of students for a shortened period of unapplied collegiate education. A total of 131, or almost three fifths of all the catalogues, contained some evidence of this sort.

6. *Professional courses in departments bearing liberal arts titles.*—In view of what has already been presented, it was to be anticipated that an examination of offerings listed under liberal arts departments bearing traditional titles would to some extent result in the discovery of courses of clearly occupational cast. Throughout this portion of the search, the investigator endeavored to hold himself, doubtless in some instances unjustifiably, to a conservative viewpoint in the matter of designating courses as of distinctly occupational content. For example, such courses as surveying and mechanical drawing appear frequently in departments of mathematics and may in truth be considered as primarily occupational in import, but were not counted as such in the study. Nor were courses called industrial chemistry, sanitary chemistry, household chemistry, direct and alternating currents, etc., included in the count, although many such are listed. The material had to be of a markedly professional character before tallied

for the distribution here presented, such as accounting, business organization, hydraulics, or newspaper-editing:

Department	Number
Chemistry	1
Physics	3
Geology	1
Mathematics	3
Economics	16
Political science	1
English composition	3
Psychology	1
Fine arts	1
Total	30

These courses were found in the catalogues of twenty-five different colleges, or eleven per cent of the total number.

7. Recognition without substantial accommodation.—This type can scarcely be considered as an expression of the willingness of authorities in colleges of liberal arts to make accommodations to the desire for a shorter period of general and unapplied training. It is rather merely a recognition of the desire of these students that their liberal training be pointed in the direction of some profession. Under this heading were tallied all outlines or suggestions of four-year preprofessional curricula having in them practically no genuinely professional material. While this type of evidence constitutes no concession on the part of the college, the reason most commonly expressed for placing this guidance in the catalogue was that proper election of fundamental studies would shorten the time required to complete the curriculum of the professional school. The number of colleges counted here was thirty-nine. Only five of these appear as not exercising any of the preceding types—the real accommodations. These recognitions are not included in the following numerical summary.

Summary of the extent of accommodation.—As no adequate impression of the actual extent of these efforts to accommodate the college offering to those whose needs or desires point to a shorter period of non-occupational training can be gained from the description of the character and extent of each of the types of concession discovered, Table CV has been assembled which will be of some assistance in this connection. It shows the number and percentage of colleges making each number of types of accommodation. As many as fifty-two and fifty colleges, respectively, make one and two such types of concession as have been described above, thirty-three make three, twenty-one make as many as four, while seven go as far as making five such types of concession. A total of 163 colleges publish

one or more types of accommodation. This is 71.8 per cent, almost three fourths, of all the colleges included in the study. The average number of types of accommodation per college is 1.6.

TABLE CV

NUMBERS OF COLLEGE CATALOGUES SHOWING 1, 2, 3, 4, OR 5 TYPES OF ACCOMMODATION

NUMBER OF TYPES	NUMBER OF COLLEGES	PER CENT OF 227 COLLEGES
One	52	22.9
Two	50	22.0
Three	33	14.5
Four	21	9.3
Five	7	3.1
TOTAL	163	71.8

It should be kept in mind that this is not the same thing as saying that there was this number of *accommodations* per college. The total number of these was 539, many colleges offering two or more accommodations of a type. Thus, the average number of accommodations per college was 2.4.

The standard vs. the unrecognized colleges.—The question may be raised as to whether these accommodations are not more often made in the weaker than in the stronger colleges. The answer is to be found in the following result of a special inquiry on this point. The 227 colleges in the study included 171 on the American Council's list of standard institutions and 56 not on the list. Although, on account of our inadequate organization for approving or disapproving higher institutions, some colleges not on this list may be as good or better than many on it, the line of demarcation between the two groups is not clear cut, the unlisted schools as a group cannot compare with the listed schools. The point in question was canvassed by ascertaining the numbers and percentages of each of the two groups which made accommodations of the first, third, and fifth types as described above. For Type 1 the percentages were, respectively 15.3 and 8.9 for the listed and unlisted colleges; for Type 3, 35.7 and 23.2; for Type 5, 80.2 and 46.5. In each instance a much larger percentage of the recognized than of the unlisted colleges make the type of accommodation in question. The accommodations are, therefore, not a characteristic of institutions of lower standards.

The meaning.—While the accommodations to the pressure for abbreviated periods of unspecialized training have been distributed to six types, they may be roughly divided into two major groups—first, the tendency to show the student how he may complete his liberal training in two or three years and then transfer to a professional school, and, second, the

introduction of professional studies into the upper end of the four-year period of collegiate training. Although no effort was made to ascertain the numbers so served, for many students the four-year liberal arts college must function as a junior college or sometimes a little more, and for others it must serve as a junior college plus a partial or complete professional training. It should be apparent that colleges may be rendering this junior college type of service without acknowledging it openly, as do a few of them, by granting an associate in arts degree upon the completion of a two-year preprofessional curriculum.

Moreover, the movement to make concessions is not a scattered one; it is rather general. There are, of course, colleges that still maintain a stubborn resistance to what they look upon as the illegitimate encroachments of utilitarian motives, but they have been seen to be even now a dwindling minority. This is in striking contrast with the college curriculum of two or three generations ago which was liberal in intent throughout, being fully or almost fully prescribed and being without the slightest opportunity for specialization on the part of the student. The changes here described, as in the case of the change in the type of curriculum offered, as pointed out in a preceding section, are in harmony with what has been shown to be the greater maturity of the college student.

In concluding this section it is deemed advisable to suggest that there is no intent here to characterize the materials of professional or other occupational training as not possessing liberalizing qualities. The aim has been merely to make clear the shift from the former unapplied to the partly occupationalized college curricula of the present day.

II. The Junior College Line of Cleavage in Universities

The junior college in universities.—It is appropriate to present here at least briefly the results of a study of the forces of reorganization as they are being manifested in the larger universities of the country. These were ascertained for the most part by inquiring of the presidents concerned for statements describing any evidences of a line of cleavage allied to the junior college movement appearing in their institutions, or publications affording the information desired.

It was to be expected that the responses would refer to a rather wide variety of such manifestations. Among those most often mentioned were the preprofessional curricula, usually two years, but sometimes one or three years in length. This type of allied line of cleavage was mentioned in at least ten instances. In view of their prevalence in universities they might have been named even more frequently than was the case, but it is not unlikely that some of the administrative officers responding do not see in the preprofessional curriculum anything analogous to the junior college idea. Another parallelism occasionally noted is the group requirements prescribed

for underclassmen and the major system prescribed for upperclassmen in the colleges of liberal arts connected with these universities. As this type of indication of the forces of reorganization has already been amply dealt with in the presentation of the results of the search for such changes in separate colleges and since we may be sure that our universities would hesitate even less to institute the changes comprehended, there can be little point in recounting these data for the latter type of institution. Space will be given only to the instances of actual introduction of the junior college line of division in universities by the establishment of a lower unit including freshman and sophomore years.

Here again it would be gratuitous to relate the details of the history of the movement to institute this line of division, especially as this has already been satisfactorily accomplished in McDowell's well-known study.[3] It is desirable only to note any related development since the preparation of his report and to present a condensed analysis of the characteristics of the movement in its present state.

Present extent of the movement.—By the time McDowell reported, three universities had effected such divisions and were then operating them, viz., the Universities of California, Chicago, and Washington. The University of Washington was the first institution to introduce the plan since the nineties when the other two universities had seen fit to do so. Between the date of McDowell's writing and the current school year—a period of five years—three more joined the list, the University of Minnesota, Leland Stanford Junior University, and the University of Nebraska. The responses from other universities show that the step is being seriously considered and may soon be taken in at least a few more institutions. Although pertinent to the problem in hand nothing more than mention is made of junior college divisions in institutions like Lewis Institute of Chicago and Toledo University, which in their early existence were primarily junior colleges, but are now approved senior colleges. These still maintain junior college units as important parts of the plan of organization. The movement has now gone far enough to warrant an attempt at analysis of current practices as shown in university catalogues in order to ascertain to some extent its meaning.

Characteristics of the movement.—The *name* given the unit has so far taken three forms. It is called the "lower division" in three universities; the "junior college" in two; and the "junior division" in one of the universities concerned. As far as may be ascertained from the bulletins examined, only three have provided special *administrative officers* for the lower unit. In one there is a dean; in another, an assistant dean; and in the third, a special "Committee on Lower Division Administration."

[3] The Junior College. United States Bureau of Education, *Bulletin*, 1919, No. 35, pp. 16-20, 43-45.

In only two of these six universities does the lower unit comprehend all lines of work afforded students in these two years. In one of these, the University of Chicago, the problem of such inclusion is simplified by the absence of engineering schools. In Stanford University, however, the engineering departments have been incorporated in the plan. This has not been accomplished with all desirable satisfaction, if we may judge from a statement made by President Wilbur. In discussing what he refers to as "the most significant educational advance of the year" in Stanford he says, "It is unfortunate that the variability in the requirements of different departments made it impossible to present any plan for the organization of the first two years that is uniformly acceptable. This applies particularly to engineering. It will be necessary to make certain exceptions to the general rules of the Lower Division."[4] In the four remaining institutions it is either solely or mainly the liberal arts group to which the division has been applied, except that the junior division serves in a preprofessional way all schools beginning with the third college year.

Three of the official bulletins in which descriptions of the lower unit are provided seem to have aimed at stating its *purpose,* other than merely to say that it includes the first two years of the college. Each of these three stresses at least one function in common, although this is differently expressed in each instance. In Stanford University this stated object is "to introduce the student to fundamental fields of human interest;"[5] in the University of California, "it is expected that the student . . . . will make an effort to establish a basis for that breadth of culture which will give him a realization of the methods and results of some of the more important types of intellectual endeavor, and a mental perspective that will aid him in reaching sound judgments;"[6] and in the University of Washington, "to contribute to a broad general training in preparation for the advanced work of the upper division."[7] The only important additional purpose posited in these bulletins is given for the lower division in the institution last named, "to supplement the work of the high school." "The object" [of the requirements in the lower unit], says the catalogue of the University of Washington, "is to secure for the student a knowledge of a wide range of subjects, to distribute his knowledge over the fundamental fields. To this end the high school and college are viewed as essentially a unit."

[4] Annual Report of the President for 1919-20, pp. 10-11. Supplement to the *Stanford Illustrated Review* 22: No. 5. February, 1921.

[5] Registration Manual of the Lower Division, p. 6. Stanford University *Bulletin,* Third Series, No. 48. June 15, 1921.

[6] Circular of Information, Academic Departments, pp. 30-31. University of California *Bulletin,* Third Series, 15, No. 2.

[7] Catalogue, 1920-21, and Announcements, 1921-22, p. 67. University of Washington *Bulletin,* General Series 1, No. 142. July, 1921.

It is not surprising to see this philosophy of the lower unit finding expression in the administration of the *curriculum*. It does so, first, through the references to, and requirement of, courses intended to be *general* in character. In Stanford a course in "problems of citizenship" composed of economics, political science, and sociology, was introduced particularly to serve the purpose and is prescribed for all lower division students. The Nebraska catalogue states that "many of the Junior Division [courses] aim to give a fairly broad and comprehensive survey of the subjects studied."[8] The operation of this philosophy is seen, next, in the requirement of the *distribution* of lower division work to the several groups into which the offering is divided. This practice varies in detail in the six institutions but is common to all. As this is a characteristic well-nigh universal in colleges of liberal arts whether separate or units in universities, it will require no illustration. Lastly, all but one of these junior college divisions encourage or require *continuity with the high school work below,* four of these clearly, and the remaining one only partially—this in agreement with an assumption that work in this division is all of a piece with secondary education. Thus, in the University of California, "certain courses in the high school are accepted as fulfilling in part or in whole some of these junior college certificate requirements;"[9] in the University of Chicago, there is the requirement of a "continuation group," extending the amount of work taken in the principal or secondary admission group, as well as "distribution groups" in each of which the student must take enough in high school or in junior college to give four majors, i.e., the equivalent of two high school units, by the end of his sophomore college year.[10]

Other evidences that a distinction of function between the lower and upper divisions is seen are to be found in the provisions for *advice,* the recognition by *certificate* at the termination of the former, the administrative *separation of courses* for the first two units, and the point set for the *beginning of specialization*. Advisers on curricular matters are mentioned as being provided for in most of the six units. These are not often in the nature of departmental advisers characteristic of the senior unit, but intended to serve groups of students who have presumably not decided upon their major lines or are still in the process of doing so. In this respect they serve a similar purpose as advisers in high school below. The bulletins show that two institutions are recognizing completion of the lower division requirements by granting a "junior certificate." More may be actually doing this. Five universities have classified the courses offered in such a way as to distinguish those regarded as appropriate for the lower from those appropriate for the

[8] Fifty-second Annual Catalogue, p. 14. University of Nebraska *Bulletin,* Series 25, No. 15.

[9] *Loc. cit.*

[10] *Loc. cit.*

upper division, and most of these place restriction or even impose a penalty upon the taking of lower unit courses by upper unit students. It is pertinent to quote here from a letter received from Dean Buck of the College of Arts and Sciences of the University of Nebraska in which he says:

> The penalty which we put upon a student in the senior division who elects junior division courses has already brought it about that the more advanced classes in all of the departments have increased in numbers from fifty to three hundred per cent. Our chief objection to the old elastic elective system arose from the fact that many juniors and seniors in the College selected much of their work in elementary courses.

All six of the universities insist upon the selection by the student of a major field by the end of the sophomore or the beginning of the junior year, recognizing the senior unit as the place of specialization.

Another function of the lower division in three institutions is that of *selection* of students for work on the higher levels. This is apparent in three bulletins. In the University of Chicago the student is advanced to the senior college when he has met, among others, a requirement of the completion of "eighteen majors of work with at least thirty-two grade-points." Similar to this quali-quantitative requirement is the one in the University of Minnesota which insists upon the completion for promotion of "ninety credits and ninety honor-points." Somewhat different, but of the same general import, is that in the University of Nebraska which says, "if this sixty hours required for completion of the lower division is not completed in the first five semesters of attendance, the student is automatically dropped from the University, unless extension of time be granted by the Senate Scholarship Committee."[11] All these regulations seem to be intended to operate as scholastic hurdles that must be taken for advancement in the upper unit.

Concluding remark.—The major impression resulting from this examination of the junior college movement within the university is that, where appearing, it seems founded upon a conviction that the functions of the lower years of the university, more especially of the college of liberal arts, are to be distinguished, at least in considerable part, from those of the upper years. The upper years seem assumed to be the proper place for the beginning of specialization, whereas the lower are still years of general education. This characteristic of the lower division, coupled with the emphasis upon the desirability of having the work in the lower division continuous with that of the high school, not to mention other administrative provisions like that pertaining to guidance, argues that these higher institutions are proceeding as if these first two years are really a part of the full period of general or of secondary education, and that higher education proper begins in the upper unit.

[11] *Loc. cit.*

CHAPTER XXIII

RETENTION AND ELIMINATION IN COLLEGES AND UNIVERSITIES

I. Why the Study Was Made

That there is considerable elimination from colleges and universities is a matter of common knowledge—so common, in fact, that there are those who have made the rather extravagant assertion that most of our colleges, measured in terms of the length of stay of students, are primarily junior colleges without being aware or desiring to be aware of it. It was to inquire into the justifiability of such assertions that the study here reported has been made, as well as to discover any other significances for the junior college movement latent in the data used. Although it is a matter of no small concern, as far as is known this is the first study of its kind involving a considerable number of higher institutions to make its appearance.

II. The Procedure

Estimates of the extent of elimination from college have usually been made by the simple method of ascertaining the number enrolled in each of the four college years during any one school year, and then computing the percentage which those in each year after the first are of the freshman enrolment. For a number of reasons this is an improper procedure. For instance, some students make progress at less than the normal rate and may, therefore, be members of the same class for two years. It has been found in this study that the proportion of those retarded is too large to be safely ignored. Again, some students by taking additional hours or attending summer sessions, or both, shorten their periods of collegiate training to three calendar years. If the simple procedure above described were followed, these would not appear in the fourth year and would therefore tend unjustifiably to reduce the percentage found for that year. Then, too, the fact that the rising tide of popular education is affecting our higher institutions would tend to exaggerate unwarrantably the impression of the extent of elimination from college and university.

Additional reasons could be cited for using the method followed in the study here reported, which is essentially that of tracing each individual student in some one entering class through his entire college career. Enough of the details of this procedure will be given to make the whole as clear as can be done in brief space. Catalogues of four successive years for each college were secured. In order to avoid a student generation cut across by the registration disturbances of the war period it was necessary to select for the beginning point the catalogues of 1912-13 or 1913-14. The list of

seniors appearing in the last of the series of four catalogues was compared with the list of freshmen in the first of the series and each of the latter found in the former was credited with four years of attendance. The list of juniors in the third of the series of catalogues was similarly compared with the freshman list of the first catalogue, and students whose names appeared in the former without having appeared in the senior list were credited with three years of attendance. Analogous procedure was followed for the sophomore list. Next, other class lists in other years were canvassed in order to locate any who had not been accounted for in the manner described. In instances where a freshman's name appeared in the senior list two years later (that is, a year earlier than normally to be found there), he was credited with four years of attendance.

These things done, a list of all students eliminated from any college before the opening of their fourth years was prepared and this list sent to the registrar of the institution with the request to note the accuracy or inaccuracy of the last year of residence as given in the list and the fact of transfer to another institution, if such transfer had been made. The registrar was asked also to supply the information as to the school and professional curriculum to which the student transferred, if these data were available. The information from registrars, first, assures correct results and, second, makes it possible to study the extent and character of transfer from institution to institution.

Eastern colleges, data concerning which have been used, are Allegheny, Bates, Dickinson, Hamilton, Hobart, Jackson (women's college in Tufts), Mount Holyoke, Smith, Tufts, and Williams. Colleges of the Middle West are Carleton, Coe, Fairmount, Grinnell, Hamline, Hedding, Huron, Illinois, Illinois Wesleyan, Knox, Lawrence, Monmouth, and Ripon. Data concerning the liberal arts groups of three mid-western universities, two public and one private, Ohio State, Wisconsin, Northwestern, were also compiled. Several other schools were on the original list but were excluded because the full series of catalogues necessary could not be secured or because registrars could not supply the information asked for when lists of eliminated students were sent them. The only effort in the selection was to secure institutions of several types, as may be seen from the fact that colleges of the East and of the Middle West, segregated and coeducational institutions, small and large schools, and colleges and universities are all represented.

III. The Extent of Retention and Elimination

A. *Retention in the same institution.*—The extent of retention of students in eastern colleges and mid-western colleges and universities is shown in Tables CVI, CVII, and CVIII. The method of reading these tables may be illustrated for Allegheny College in Table CVI: 58, or 75.3 per cent, of the 77 freshmen men were still enrolled in this institution during their second year; 50, or 64.9 per cent, during their third year; and 47, or 61.0 per cent, during their fourth year. At the foot of each of these tables will be found the totals enrolled in each year, the percentages computed from these totals, the ranges represented in each group of schools, and the percentages which the number retained in each year are of those retained in the year preceding.

As space cannot be spared to call attention to the percentages for each of the colleges, Figures 58 to 62 are introduced to facilitate certain significant comparisons. The first of these shows the percentages of retention into second, third, and fourth years for all the eastern colleges included in the study and, in order to illustrate the range of retention in particular schools, the percentages for Bates and for Mount Holyoke. The percentages for the former are the lowest to be found, while those for the latter are among the highest. The variation is seen not to be exceedingly wide but the extent of elimination for the group, while not enormous, is of sufficient magnitude to warrant serious contemplation of the problem involved. The next figure (59) shows that men in this group of colleges are eliminated to an appreciably larger extent than the women.

The next figure (60) is not flattering to the group of mid-western colleges included, as the percentage is seen to drop almost a third of the total distance during the first year, and to below the middle point by the opening of the third. The colleges selected to illustrate relatively high and low retention are fully fifteen to twenty per cent apart during the last three years, but not even the better of the two has a high per cent of retention. Figure 61 shows essentially the same difference between the percentages for men and women as do the figures for the eastern colleges.

With a view to ascertaining the influence, if any, of the size of the college upon retention, averages of the percentages of retention into the third year were computed for the six colleges of the mid-western group having the largest freshman enrolments and for the six having the smallest. These averages are, respectively, 9.1 and 48.9 per cent, indicating that the smaller colleges tend to hold their students as well as the larger.

A comparison of retention and elimination in the three groups of institutions is provided in Figure 62. The eastern institutions are seen to retain much larger proportions than the mid-western colleges, the percentages for the three universities lying between those for these two groups, but somewhat nearer the eastern than the mid-western colleges.

NUMBERS AND PERCENTAGES OF FRESHMEN RETAINED IN SECOND, THIRD, AND FOURTH YEARS IN EASTERN COLLEGES

COLLEGE	MEN				WOMEN				TOTAL			
	First Year	Second Year	Third Year	Fourth Year	First Year	Second Year	Third Year	Fourth Year	First Year	Second Year	Third Year	Fourth Year
Allegheny												
Number	77	58	50	47	50	40	34	34	127	98	84	81
Per cent	...	75.3	64.9	61.0	...	80.0	68.0	60.0	...	77.2	66.1	63.7
Bates												
Number	91	55	48	47	50	45	39	39	141	100	87	86
Per cent	...	60.4	52.7	51.6	...	90.0	78.0	78.0	...	70.9	61.7	61.0
Dickinson												
Number	86	66	57	53	16	15	15	13	102	81	72	66
Per cent	...	76.7	66.3	61.6	...	93.8	93.8	85.0	...	79.4	70.6	64.7
Hamilton												
Number	73	57	52	48	..	..	..	..	73	57	52	48
Per cent	...	78.1	71.2	65.7	...	...	...	...	...	78.1	71.2	65.7
Hobart												
Number	44	41	31	28	..	..	..	..	44	41	31	28
Per cent	...	93.1	70.4	63.6	...	...	...	...	...	93.1	70.4	63.6
Mount Holyoke												
Number	..	..	..	..	239	198	170	167	239	198	170	167
Per cent	...	...	...	...	...	82.8	71.1	69.9	...	82.8	71.1	69.9
Smith												
Number	..	..	..	..	509	407	358	343	509	407	358	343
Per cent	...	...	...	...	...	79.9	70.3	67.3	...	79.9	70.3	67.3
Tufts												
Number	71	51	51	45	..	..	..	..	71	51	51	45
Per cent	...	71.8	71.8	63.3	...	...	...	...	...	71.8	71.8	63.3
Jackson												
Number	..	..	..	..	30	23	22	22	30	23	22	22
Per cent	...	...	...	...	....	76.6	73.3	73.3	...	76.6	73.3	73.3
Williams												
Number	160	131	123	103	..	..	..	..	160	131	123	103
Per cent	...	81.8	76.8	64.3	...	...	...	...	...	81.8	76.8	64.3
TOTALS	602	459	412	371	894	728	638	618	1496	1187	1050	989
Per cent of first year remaining	...	76.2	68.4	61.6	...	81.4	71.4	69.1	...	79.3	70.2	66.1
Range	...	60.4–93.1	52.7–76.8	51.6–65.7	...	76.6–93.8	68.0–93.8	67.3–85.0	...	70.9–93.1	61.7–76.8	61.0–73.3
Per cent of previous year remaining	...	76.2	89.8	90.0	...	81.4	87.6	96.9	...	79.3	88.5	94.2

TABLE CVII.—Numbers and Percentages of Freshmen Retained in Second, Third, and Fourth Years in Mid-Western Colleges

College		Men				Women				Total			
		First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth
Carleton	Number	72	46	37	34	63	49	35	35	135	95	72	69
	Per cent	...	63.9	51.4	47.2	...	77.8	55.6	55.6	...	69.7	53.3	51.1
Coe	Number	51	31	26	23	60	43	33	27	111	74	59	50
	Per cent	...	60.8	51.0	45.1	...	71.7	55.0	45.0	...	66.7	53.2	45.0
Fairmount	Number	17	11	7	5	27	14	12	10	44	25	19	15
	Per cent	...	64.7	41.2	29.4	...	51.9	44.4	37.0	...	56.8	43.2	34.1
Grinnell	Number	79	52	41	37	102	72	48	45	181	124	89	82
	Per cent	...	65.7	51.9	48.1	...	70.6	47.1	44.1	...	68.5	49.2	45.3
Hamline	Number	113	69	45	34	53	45	36	31	166	114	81	65
	Per cent	...	61.1	39.8	30.1	...	84.9	66.0	58.5	...	68.7	48.8	39.2
Hedding	Number	12	7	7	3	12	7	4	4	24	14	11	7
	Per cent	...	58.3	58.3	25.0	...	58.3	33.3	33.3	...	54.2	45.8	28.3
Huron	Number	11	6	6	4	27	17	14	14	38	23	20	18
	Per cent	...	54.5	54.5	36.4	...	62.9	51.8	51.8	...	60.5	52.6	47.3
Illinois	Number	34	24	21	16	10	7	7	6	44	31	28	22
	Per cent	...	70.6	61.8	47.1	...	70.0	70.0	60.0	...	70.5	63.6	50.0
Illinois Wesleyan	Number	42	20	13	13	49	26	21	21	91	46	34	34
	Per cent	...	47.6	31.0	31.0	...	53.1	42.9	42.9	...	50.6	37.4	37.4
Knox	Number	53	35	29	21	56	39	25	25	109	74	54	46
	Per cent	...	66.0	54.7	39.6	...	69.6	44.6	44.6	...	67.8	47.7	42.2
Lawrence	Number	107	61	42	37	93	75	43	43	200	136	85	80
	Per cent	...	57.0	39.2	34.5	...	80.5	46.2	46.2	...	68.0	42.5	40.0
Monmouth	Number	42	34	24	23	50	34	28	25	92	68	52	48
	Per cent	...	81.0	57.1	54.8	...	68.0	56.0	50.0	...	73.9	56.5	52.2
Ripon	Number	46	32	23	21	20	14	11	9	66	46	34	30
	Per cent	...	69.6	50.0	47.8	...	70.0	55.0	45.0	...	69.7	51.5	45.4
Totals		679	428	321	271	622	442	317	295	1301	870	638	566
Per cent of first year remaining		...	63.0	47.3	39.9	...	71.0	51.0	47.4	...	66.9	49.0	43.5
Range		...	47.6–	31.0–	25.0–	...	53.1–	33.3–	33.0–	...	50.6–	37.4–	28.3–
		...	81.0	61.8	54.8	...	84.9	70.0	60.0	...	73.9	63.6	52.2
Per cent of previous year remaining		...	63.0	75.0	84.4	...	71.0	71.7	93.1	...	66.9	73.3	88.7

TABLE CVIII

NUMBERS AND PERCENTAGES OF FRESHMEN RETAINED IN SECOND, THIRD, AND FOURTH YEARS IN MID-WESTERN UNIVERSITIES

UNIVERSITY	MEN				WOMEN				TOTAL			
	First Year	Second Year	Third Year	Fourth Year	First Year	Second Year	Third Year	Fourth Year	First Year	Second Year	Third Year	Fourth Year
Northwestern												
Number	194	118	90	75	247	177	148	134	441	295	238	209
Per cent	...	60.8	46.4	38.6	...	71.7	59.9	54.3	...	66.9	54.0	47.4
Ohio State												
Number	204	181	154	124	130	110	91	77	334	291	245	201
Per cent	...	88.7	75.4	60.7	...	84.6	70.0	59.2	...	87.1	73.4	60.2
Wisconsin												
Number	272	203	149	134	203	167	145	136	475	370	294	270
Per cent	...	74.6	54.8	49.3	...	82.3	71.4	66.9	...	77.9	61.9	56.8
TOTALS	670	502	393	333	580	454	384	347	1250	956	777	680
Per cent of first year remaining	...	74.9	58.7	49.7	...	78.3	66.2	59.8	...	76.5	62.2	54.4
Range	...	60.8–	46.4–	38.6–	...	71.7–	59.9–	54.3–	...	66.9–	54.0–	47.4–
	...	88.7	75.4	60.7	...	84.6	71.4	66.9	...	87.1	73.4	60.2
Per cent of previous year remaining	...	74.9	78.3	84.7	...	78.3	84.6	90.4	...	76.5	81.3	87.5

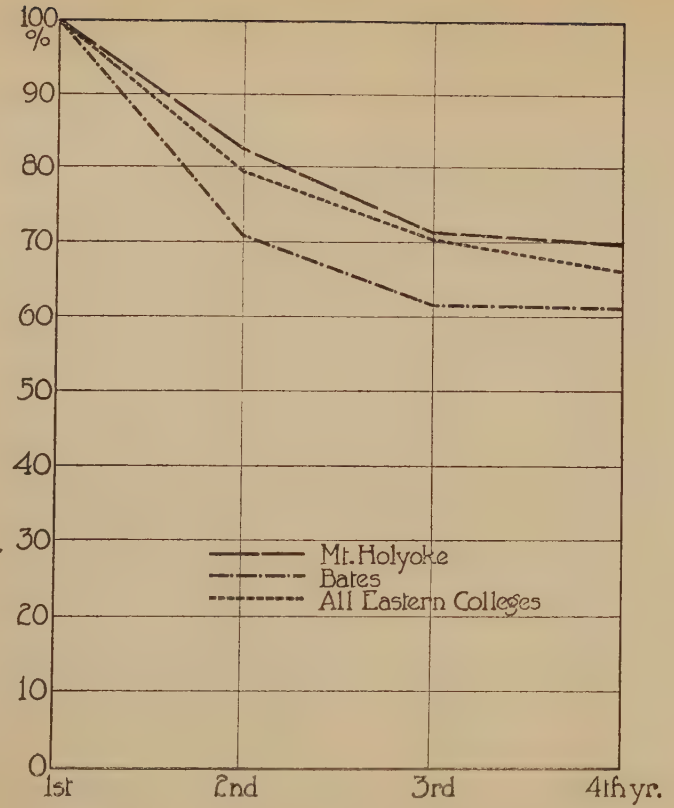

Figure 58

Percentages of retention for Mount Holyoke, Bates, and all eastern colleges included in the study

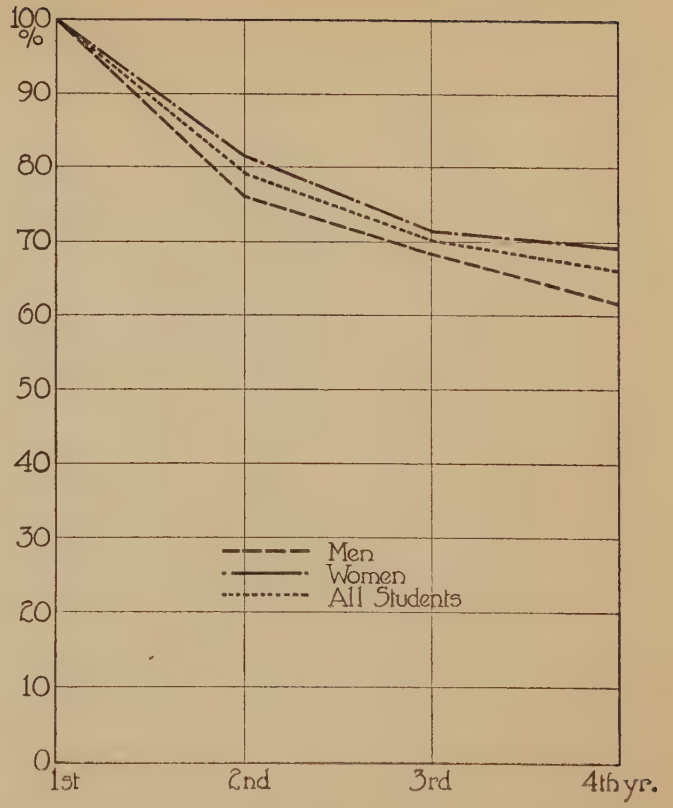

Figure 59

Percentages of retention for men, women, and all students in all eastern colleges included in the study

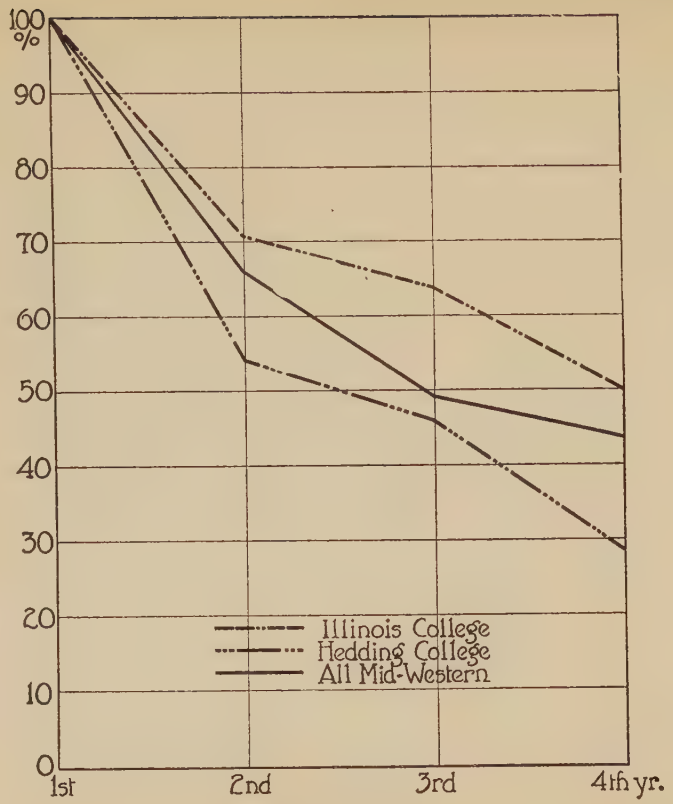

Figure 60

Percentages of retention for Illinois College, Hedding College, and all mid-western colleges included in the study

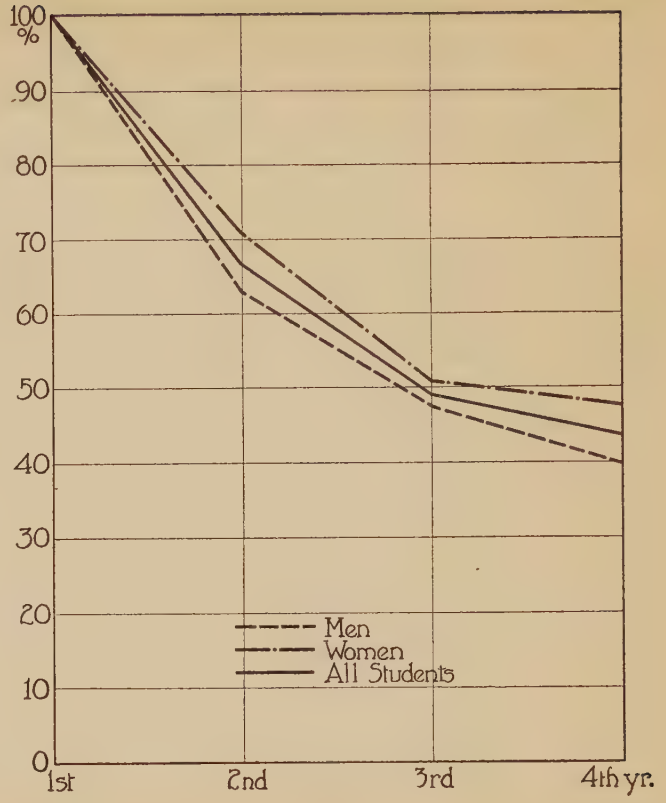

Figure 61

Percentages of retention for men, women, and all students in all mid-western colleges included in the study

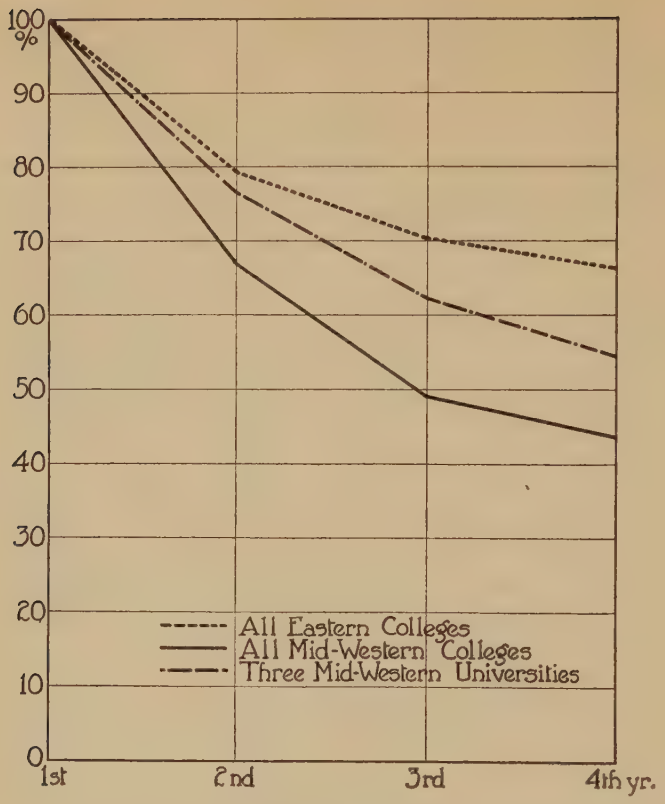

Figure 62

Percentages of retention for all eastern colleges, all mid-western colleges, and three mid-western universities included in the study

B. *Retention in higher institutions with correction for transfers.*— While what has been presented gives a fairly faithful picture of retention and elimination from individual institutions or from homogeneous groups of institutions, it does not afford a description of the *full extent of retention in higher institutions,* when account is taken of students who transfer from one institution to another. Obtaining this corrected figure of retention has been made possible through information supplied by registrars concerning the fact of transfer of individual students from the institution of first matriculation. The results of this aspect of the study have been presented in Table CIX. The total original freshman registration is the first item of information supplied. These have been obtained from Tables CVI, CVII, and CVIII—for the first two groups directly from the totals near the foot of the tables, and for the third by adding the figures on total enrolment for

Northwestern and Ohio State universities only. Wisconsin has been omitted from the new table because it was not found feasible in that institution to supply data on transfers.

TABLE CIX

RETENTION OF ALL STUDENTS ENTERING CERTAIN GROUPS OF HIGHER INSTITUTIONS, CORRECTED FOR TRANSFERS

GROUP OF INSTITUTIONS	ITEMS	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR
Eight eastern colleges	Enrolment excluding transfers	1395	1113	977	922
	Correction for transfers	....	51	86	86
	Corrected enrolment.	1395	1164	1063	1008
	Per cent of first year enrolment retained in higher institutions...	100.0	83.4	76.2	72.3
Thirteen mid-western colleges	Enrolment excluding transfers	1301	870	638	566
	Correction for transfers	....	82	134	148
	Corrected enrolment..	1301	952	772	714
	Per cent of first year enrolment retained in higher institutions...	100.0	73.2	59.3	54.9
Two mid-western universities	Enrolment excluding transfers	775	586	483	410
	Correction for transfers	....	33	46	52
	Corrected enrolment..	775	619	529	462
	Per cent of first year enrolment retained in higher institutions ..	100.0	79.9	68.2	59.7

The second row of figures for each group of institutions refers to the addition of students in each of the years ascribable to retention through transfer. These figures were arrived at in part by direct addition of those who were reported as transferring at the end of first, second, and third years, but also in part by a circuitous computation involving the use of the percentages to be found in the lowest row of figures in Tables CVI, CVII,

and CVIII and designated as "per cent of previous year remaining." To make the method of computation clear it will not be out of place to provide an illustration. There was a total of fifty-one transferees in the group of eastern colleges before the opening of the second year, and forty-one more before the opening of the third year. On the assumption that the same percentage of the fifty-one as of untransferred students would remain the third year, 88.5 per cent (see foot of Table CVI), or forty-five[1] should be added to the forty-one. This gives a total of eighty-six students. The same method was used to ascertain the probable number for the next, or fourth, year. This method was used because any attempt to trace the individual transferees would have involved an almost interminable extent of correspondence. On the other hand, it would have been manifestly incorrect either to assign each student credit for a single year of attendance in the institution of his second adoption or to assume that he remained until the end of what would have been for him a four-year period of higher education. Nevertheless, the corrected retention reported is probably *in excess* of the actual amount, inasmuch as the transferees may be regarded as a group somewhat less stable in attendance than those who do not transfer. It is within safety to assume that the total retention is *no higher* than that reported.

The remaining steps in the computation of corrected retention are so evident as to obviate the necessity of exposition.

The significance of the percentages of retention to be found in Table CIX is made more apparent by Figures 63, 64, and 65, which essay a comparison of the extent of retention in higher institutions when thus corrected for transfers with those shown in Tables CVI, CVII, and CVIII which take into consideration retention in the same institution only. The first of these figures shows an appreciable, but not large, amount of improvement with the transferees included. The second shows a difference approximately twice as great, i.e., twice the percentage of students transfer from mid-western than from eastern colleges. The difference for the two mid-western universities is not quite as great as for the first group of institutions. Even with the large proportionate improvement, the mid-western college freshmen are not retained as well as those in either of the other two groups.

C. *Further analysis of the transfers.*—There was a total of 347 instances of transfer included in the data utilized in this study of retention and elimination. Of these, 283 transferred from institutions of the college type, 97 from the eastern group of colleges, and 186 from the mid-western. For 10 of the eastern transfers and fifty-four of the western the institution to

[1] The computation brings 45.1, but throughout this portion of the study the nearest whole number was introduced into the next higher level.

which the student migrated was not indicated by the registrars. Concerning the 219 transferees, 86 eastern and 133 western, the following was learned: (a) *A total of 182, or 83.1 per cent, shifted to universities or other institutions where professional training is available.* The numbers and percentages for eastern and western colleges were, respectively, 71, or 81.6 per cent, and 111, or 84.1 per cent. Among this total number were 89 who were indicated as transferring to universities without designation as to special school and 13 transferring to normal schools. The total number includes only twenty, 14 of them women, transferring to the liberal arts unit of universities. All others are designated as transferring to specific occupational groups in universities. (b) A total of but 37, or slightly more than a sixth, of the whole number, transfer to separate colleges of liberal arts. Of this number 27 were women and only 10 were men.

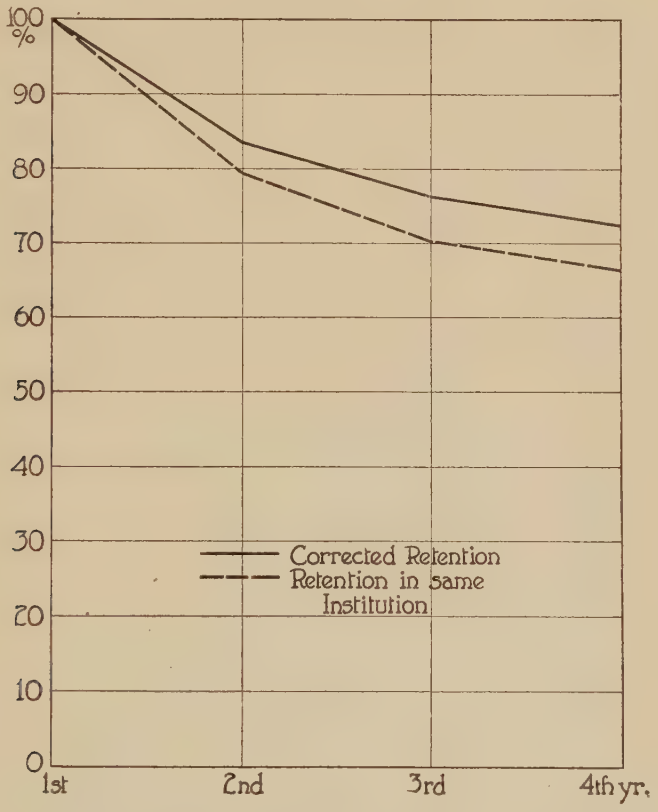

Figure 63

Comparison of percentages of corrected retention with retention in the same institution—eastern colleges

It is not unlikely that the proportions of those undesignated transferring to the several groups here named would, if the data concerning them were available, be similar to those for transferring students already presented. The latter, it may be stated, discover unequivocally the operation of the occupational motive for a shift coupled without doubt in many instances with what may be largely the same force, a desire to attend an institution of the university type.

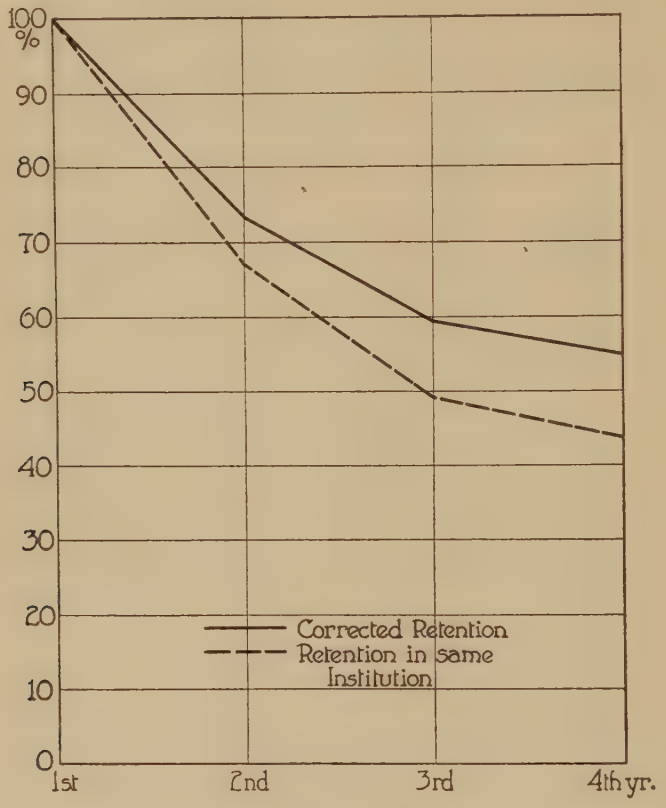

Figure 64

Comparison of percentages of corrected retention with retention in same institution—mid-western colleges

IV. The Import of the Findings

The conclusions of this study of retention in, and elimination from, higher institutions are, when put in form as brief as possible, as follows:

1. Even after all migration from institution to institution is accounted for, large numbers of students attend college less than four years, some only a single year, some two years, and others three. This is true of all groups of institutions considered, but is most characteristic of mid-western

colleges. The fact that those eliminated pursue what are for them truncated curricula has already been deprecated in an earlier chapter (VI), where it was pointed out that, because colleges and universities almost inevitably operate in terms of curricula four or more years in length, the interests of eliminated students would be better promoted in junior colleges, i.e., in institutions in which the years under consideration are terminal.

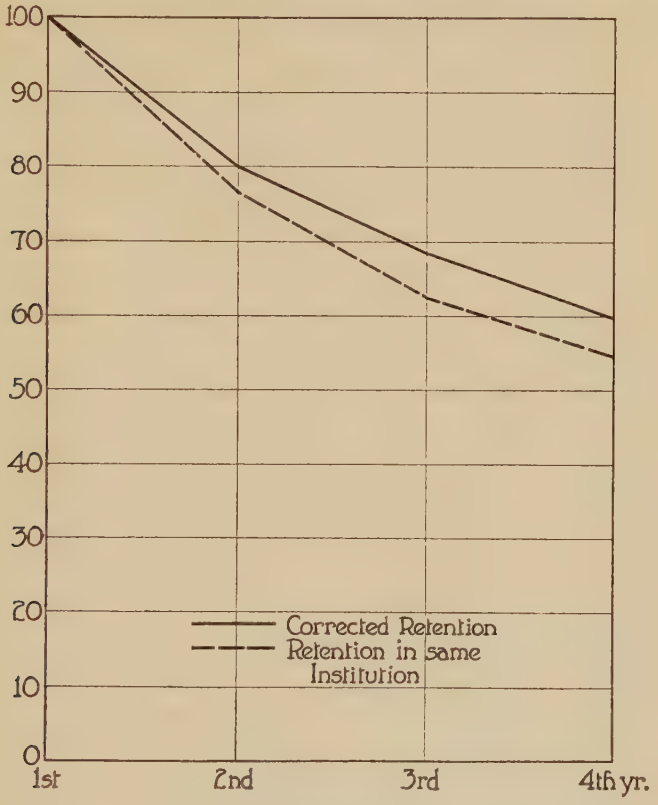

Figure 65

Comparison of percentages of corrected retention with retention in same institution—mid-western universities

2. That there are fewer transfers from mid-western institutions of the university type than for those of the college type and that most of the transfers from colleges are to universities and other institutions affording facilities for professional education and not to colleges of liberal arts, are facts evidencing a potent motive of professionalization in the upper years. Since women's occupations have not been as much professionalized as those of men, we find the occupational shift less marked for them than for the other sex. As their professions come to be precipitated out of present

tendencies, similar forces of shift and elimination will come to apply to women also. Both the shift to occupational training and the larger proportionate elimination of men tend toward a period of liberal education of less than four years' duration.

3. As has been stated, the abbreviated period of collegiate training and the proportions of transfers from institution to institution, especially in mid-western colleges, make clear that for hosts of students the college career in a single institution extends over much less than a four-year period. In fact, *for a majority of them in mid-western colleges it is not more than two years in length.* From what is disclosed in the chapter immediately following touching separate men's and coeducational colleges, it is safe to conclude that *the tendency is for this period to be shortened rather than lengthened.*

Elsewhere (Chapter V) it is shown that the most frequently recurring objection of the colleges to the junior college is that it breaks across a four-year period of education which should be compassed in its completeness. This view has been well expressed in a brief article on the relation of the junior college to the college, from which the following quotations are made:

> The genius of a college course is found in its solidarity just because it is the four years of consecutive influence which will, as nothing else, produce an impression upon young men and women during that critical period in which the warm plastic stuff of human nature is cooling down into the hard habit of life. . . . . .
>
> The opportunity for the college and for the individual student are one and the same, and this opportunity is largely lost when the first two years of college are lost.
>
> * * * * * *
>
> A college education is not a mere compilation of courses. It is more than that and it is different. At its best a college education represents a variety of influences within and without the classroom, all integrated into a well-ordered life. This is just the process which takes time and, above all else, continuity.[2]

It should be clear from the facts presented in the current chapter on the small proportions attaining the upper years in such institutions, as well as on the extent of transfer to institutions where opportunities for specialization are available, that the goal is only partially attainable. The facts of the chapter next following indicate that it is even certain to recede, getting gradually further out of reach. This must be true especially unless the curriculum of the college, at least in its upper years, makes more rapid progress toward professionalization, or—what seems well-nigh impossible—unless there should be a profound reversal of the motives which prompt the student to pursue training beyond the sophomore level. Without such changes, those who hold to an attitude similar to that quoted, desiring for those attending college a continuous four-year period of education, will be obliged to look elsewhere than in the separate liberal arts college to achieve their desires.

[2] Leal H. Headley, The College and the Junior College. Carleton College *News Bulletin*, Vol. 3, No. 5, pp. 6 ff.

CHAPTER XXIV

THE TREND OF ENROLMENT IN HIGHER INSTITUTIONS

I. Introductory

The problems.—At least one fact presented in the foregoing chapter, that which concerns the transfer of students, especially men, from separate colleges to institutions where professional training is available, suggests the desirability of studying more comprehensively the tendencies of enrolment in the entire range of higher education. What is the growth of higher education as a whole? What is the trend of growth in the several types represented, e.g., universities, separate colleges, and professional schools? Are they developing at the same rate, or has there been a tendency from the standpoint of numbers for one or another to dominate the field? Is there any difference among the several types as to the trend of enrolment in lower and upper years? Is professionalization of curricula in the universities increasing or decreasing and how does this affect the proportionate distribution of students in liberal arts and professional curricula? Is proportionate enrolment of lower and upperclassmen in the liberal arts units of these institutions increasing or decreasing? The materials of this chapter are addressed to the answer of these and related questions.

How studied.—After a brief preliminary section drawing mainly on materials already made available by other investigations, attention will be directed to two studies, (1) the first of which presents in as brief space as possible the facts concerning (a) the growth of several types of higher institutions of learning since 1888-89 and (b) the relative holding power of these types, and (2) the other, the shift of enrolment since 1894-95 within institutions of the university type. The details of procedure will in each case be presented near the point of reporting the findings of the studies.

II. The Growth of Higher Education in the United States

The Bureau of Education figures.—One of the most significant facts in the history of American education is the rapid growth of higher education during the last thirty years. In point of total numbers concerned and the proportion of the population enjoying educational privileges, this growth is outdone by that of public secondary education which underlies it. But the growth of higher institutions measured in terms of students enrolled has also been remarkable, showing not only a rapid increase in numbers, but also in the proportion of the total population enrolled. This is clearly shown in the accompanying figure taken from United States

Bureau of Education, *Bulletin*, 1920, No. 34.[1] The "index numbers" used in constructing this figure were arrived at by dividing the enrolment in all higher institutions for some year under consideration, e.g., 1902, by their enrolment in 1890, the initial year for the computations made. The index number is in effect the percentage which the enrolment in that year is of the enrolment in 1890. The essential significance of the figure is to be found in the rapid rise of the index number since 1890, which means that higher institutions have made great gains in the period under consideration. In fact, as may be seen by comparison with the line of index numbers for the population, this enrolment has gained rapidly on the population.

With the knowledge that we have several types of higher institutions, the question arises as to the bearing of each of them on the facts of total growth as shown.

Growth before 1890.—Many who see these figures for the more recent period of development in higher education are prone to look upon the growth and the gain on the population as characteristic of a much longer period, that we are observing here only the later decades of a longer period, say a century, in which the same forces have been at work and, therefore, that the relative increment has been somewhat similar. This belief appears to be unjustified. Computations by Starr[2] showed a decline in the percentage which the college enrolment was of the total population of from .00174 in 1860, to .00129 in 1870, and .00120 in 1880. His data indicate that after 1887, by which year the percentage had declined to .00108, the proportion increased until 1892, when it reached .00175. The Civil War seems to have occasioned a serious decline, but more than a single factor must have been operative in delaying recovery until the later portions of the eighties.

Other sources which, in order to save space, cannot be quoted, show that the decline which is seen in these data to characterize the sixties, was taking place even before that time. It was not as rapid a decrease as during the decade of the Civil War, but there seems no doubt that the colleges were not gaining in the same proportion as the population. A plausible cause cited is the rate of increase through immigration of stocks which would not for a generation at least manifest much interest in higher education. Another probable factor not mentioned by the writers is the westward movement of the population to territory in which few opportunities of collegiate education were available and where the

[1] Figure 4, p. 17.

[2] Merritt Starr, The Decline and Revival of Public Interest in College Education, p. 5. An address delivered before the graduates of Oberlin College, June 20, 1893. Chicago: Charles W. Magill. 1893.

income of pioneering conditions was not sufficient to encourage attendance remote from the home. This earlier decline in proportionate enrolment in higher institutions is mentioned primarily to show that social forces may sometimes operate to check or very much modify the present tendencies of growth, although it is now impossible to conjecture what these forces would be. We are certain of one fact, that we have had a vigorous growth during at least a third of a century.

III. The Trend of Enrolment in the Several Types of Higher Institutions

The method of the first study.—The enrolments in each type of higher institution considered were found by consulting the annual reports of the Commissioner of Education for the years 1889, 1899, 1909, and 1916. These gave enrolments for each institution, with a small proportion of exceptions, for the school years ending in the years named. Where these were not reported, other annual reports a year or two earlier or as much later were examined, and the enrolment for such nearest year included in the compilation.

At the time of completion of the study, data for 1919-20 for state universities and state colleges only had been made available by the Bureau of Education.[3] For other types of higher institutions another method of procedure had to be followed. This was to ascertain from the catalogues and other publications of ten to twenty per cent of such institutions the enrolments for 1919-20 and from these in relationship to enrolments in the same institutions during 1915-16 to compute a ratio which could be used in estimating the number enrolled during the latter year. Thus, for approximately 20 per cent of the private universities of the country the enrolment as found in the report of the commissioner was 11,916 students, while the catalogues and reports of these same institutions gave an enrolment of 14,684. The ratio of the former to the latter is 1 :1.2323. Multiplying the total enrolment in private universities in 1915-16 by the right-hand member of this ratio, our estimate shows 57,718 students enrolled in 1919-20. It cannot be assumed that this number is better than approximate, but it is a rather close approximation, since ratios obtained on a full count of enrolment for state universities and for other public institutions as given in the bulletin mentioned were, respectively, 1 :1.2555 and 1 :1.2180.

[3] *Bulletin*, 1920, No. 48.

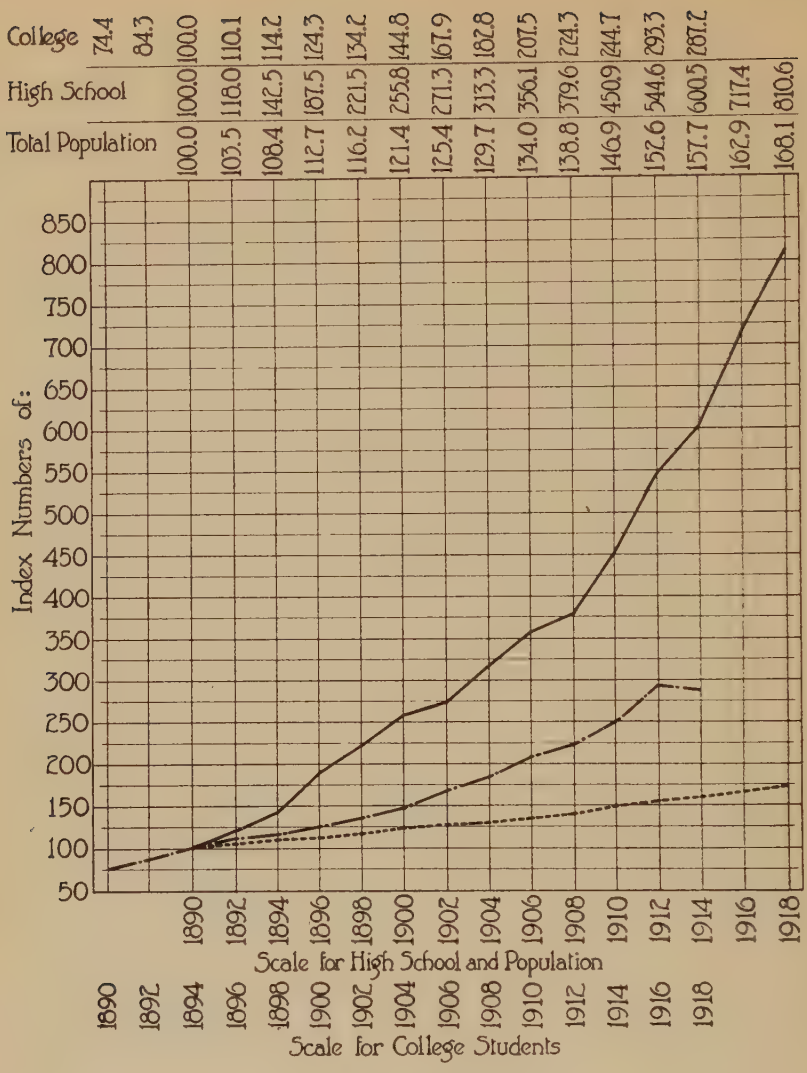

Figure 66

Index numbers showing the comparative rates of increase in the total population, the total high school enrolment, and the total number of students in collegiate and resident graduate departments of universities, colleges, and technological schools from 1890 to 1918. (The curve for college students has been shifted to the left to compensate for lag.) Copied from United States Bureau of Education *Bulletin*, 1920, No. 34, p. 17.

The types of units for which the computations were made are listed in Table CX. The first three include enrolments for such professional schools as are not reported separately under Types VI-X, data on which are given separately in the reports of the commissioner. "Other public institutions" include for the most part state colleges of agriculture and mechanic arts, but also separate publicly supported technical schools and universities on municipal foundations. Group IV includes all separate private colleges, excepting those classed by the Bureau of Education as Women's Colleges, Division A. The professional schools represented in the remaining groups include those connected with institutions in Groups I, II, and III, and other institutions unattached. From the compilations have been excluded data on women's colleges of the second division (B), normal schools, schools of theology, and institutions for colored students. On account of their varying entrance requirements either at the opening of or throughout the period under consideration it would have been impossible to decide what proportions of the students in these institutions were on the collegiate or on the secondary school level. It was desired to ascertain tendencies of growth of enrolments on the former level only. Without doubt this disqualification applies also to some of the professional schools included in the study, but probably not to the same extent. Moreover, the total numbers of students concerned cannot affect vitally any conclusions to be drawn. It is unfortunate that the varying standards of admission and of classification of students make it impossible to arrive at an estimate including all types of higher institutions and one in the complete accuracy of which greater confidence can be placed.

TABLE CX

ENROLMENTS IN EACH TYPE OF HIGHER INSTITUTION FROM 1888-89 TO 1919-20 AND PERCENTAGES WHICH SUCCESSIVE ENROLMENTS ARE OF THE ENROLMENTS AT THE OPENING OF THE PERIOD

TYPE OF SCHOOL	1888-89	1898-99		1908-9		1915-16		1919-20	
	No.	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
I. State universities	9,326	22,621	242.6	47,853	512.9	74,203	795.7	93,161	998.9
II. Other public institutions	6,144	12,774	207.9	26,816	435.0	36,384	592.2	44,318	721.3
III. Private universities	6,837	18,588	271.9	30,883	451.7	46,838	685.4	57,718	847.1
IV. Men's and coeducational colleges	31,813	37,650	118.4	61,604	193.6	80,981	254.4	100,813	316.9
V. Women's colleges, Class A	2,060	4,923	239.0	8,874	430.8	10,129	491.7	10,397	504.7
VI. Schools of medicine	15,608	25,838	165.5	21,415	137.2	14,590	93.5	16,835	107.9
VII. Schools of law	3,808	9,482	249.0	13,168	345.9	13,461	353.5	15,527	407.7
VIII. Schools of dentistry	2,664	8,171	306.7	6,475	243.1	10,768	404.2	12,588	472.5
IX. Schools of pharmacy	2,855	4,009	140.4	6,197	217.1	6,215	217.7	6,996	245.0
X. Schools of veterinary medicine	378	468	123.8	2,724	720.6	3,066	811.1	1,730	457.7
XI. Groups VI-X	25,313	47,968	189.5	49,979	197.4	48,100	190.0	53,676	212.0
ALL	81,493	144,524	177.3	226,009	277.3	296,635	364.0	360,083	441.9

The growth of the several types over the full period considered.—As is to be expected, the facts of growth for all the types considered as shown at the foot of the table bear out in a rough way the findings of the Bureau of Education as referred to in an earlier portion of this section. The percentages, which are in effect "index numbers," are seen to mount by large steps and to gain rapidly on the increase in the population as depicted in the figure borrowed from Bureau of Education *Bulletin*.

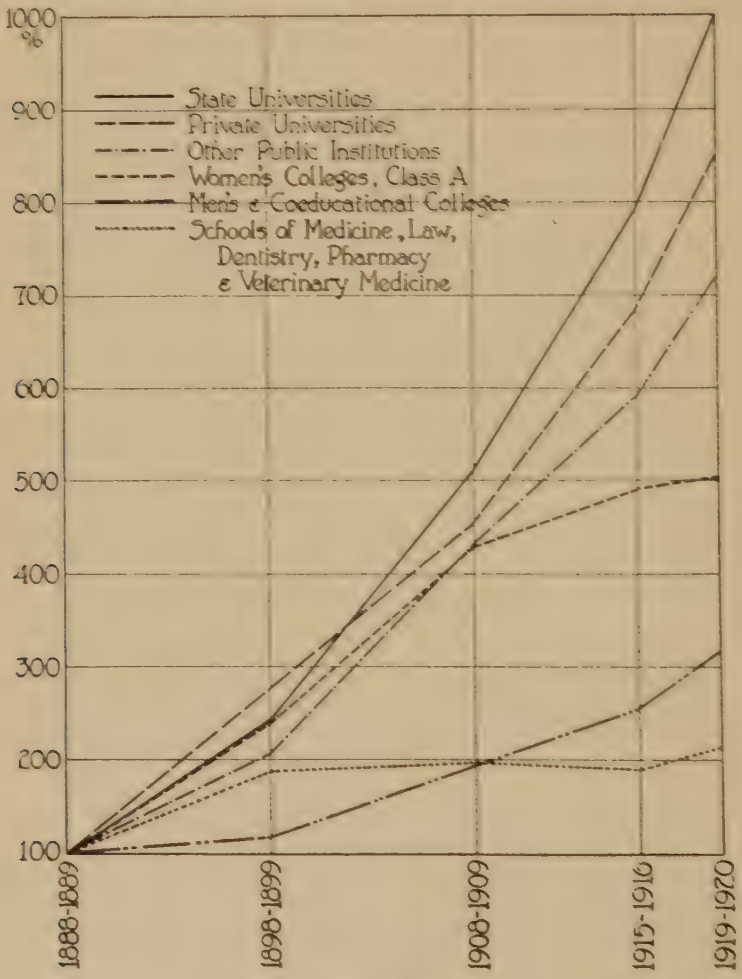

Figure 67

Percentages which successive enrolments are of the enrolments in 1888-89 in each of several types of higher institutions

The index numbers for each group of higher institutions (see also Figure 67) are seen to differ from one type to another. State universities show the most rapid rate of growth, increasing by a total of a shade

short of 900 per cent. Private universities and other public institutions follow rather closely with increases of 621.3 and 747.1 per cent, respectively, during a period of 31 years covered by the study. The remaining types follow in this order: women's colleges, class A, men's and coeducational colleges, and when considered as a single group, (XI in Table CX), the professional schools in Groups VI-X.

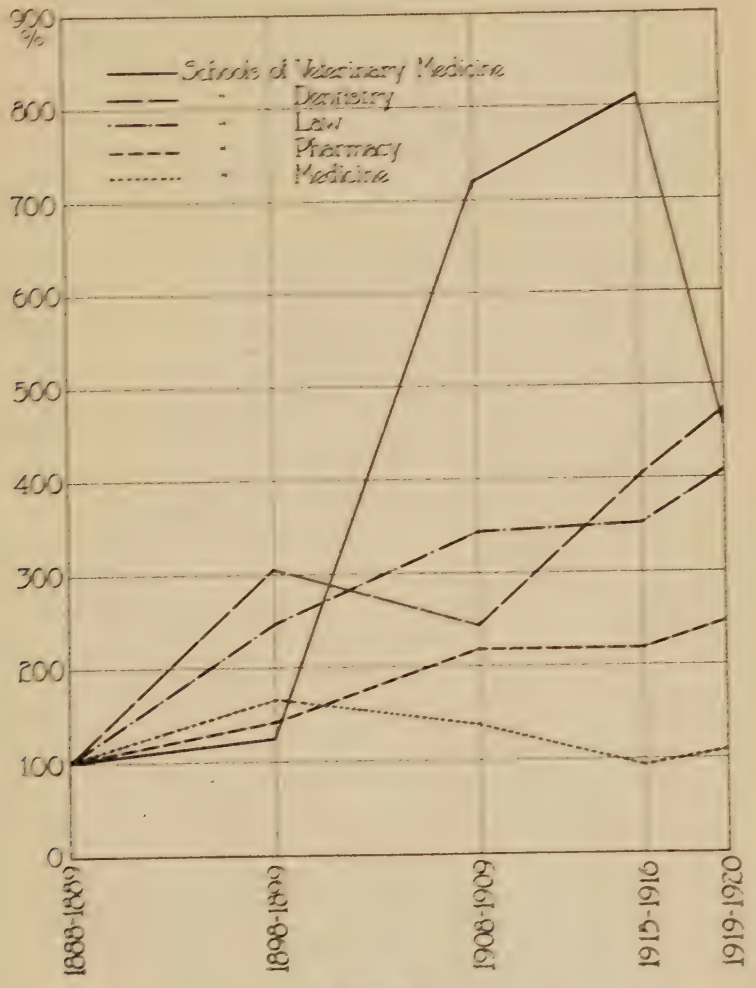

Figure 68

Percentages which successive enrolments are of enrolments in 1888-89 in each of five groups of professional schools

It may be said in summary of the situation as shown for the period as a whole that institutions of the university and polytechnic type far outstripped those of the separate liberal arts type in their rates of growth.

That this is not owing to the fact that the former were public, and the latter private, institutions is seen in the vigorous growth of universities on private foundations. Women's colleges manifested a similar tendency to growth during the first two decades, but did not increase as rapidly subsequently. It should be stated that the rates of growth of institutions of the university and polytechnic type as shown would have been slightly less if enrolments of such of their professional schools as are included in the data presented under Groups VI-X had been included. The professional schools concerned here were among the first to be established and, for the most part, did not evidence as rapid a development.

A study of each of the first four professional groups shows that the rates of growth for schools of medicine, law, and pharmacy under university and under separate control were approximately equal. Schools of dentistry connected with universities, however, grew at a rate approximately 200 per cent greater than as shown for all dental schools. As may be seen in Table CX, the rate of growth of these professional schools considered as a whole has been considerably reduced by the fluctuations in one of the predominant groups, medicine. The changes here and the actual decline in the rate of growth as concerns the whole period, as is well known, is explained by the standardization in this field, standardization which was accompanied by raising the requirements for admission. The movement resulted in the closing of the doors of many of the weaker schools, some of which had large enrolments, and of the affiliation of others with standard higher institutions.

The rates of growth in successive portions of the entire period.—Because of the influence of initial enrolments, the method used is not alone adequate or fair for comparing the growth of the several types of institutions represented. To provide a characterization of growth more nearly complete, Table CXI and Figure 69 have been prepared. The former presents the increments of enrolment during each portion of the period of years covered by the study. The increase in the number of students was obtained from Table CX, by subtracting the enrolment in each type at any one point from that at the next point considered and computing the percentage which the number obtained in this way is of the number at the former point. Thus, the number of students in state universities increased by 13,295 from 1888-89 to 1898-99 and this increment is 142.6 per cent of the 9326 enrolled in them during the earlier year.

The resulting percentages, which are presented in graphic form in Figure 69, show four types of institutions, the first four in Table CXI, which had roughly equivalent rates of growth during the last two portions of the period covered. The only one of the four with a remarkably different rate in the first two portions is Group IV, the men's and coeducational

colleges. The increments for women's colleges and the professional schools during the last two portions of the period differ notably from those of the other types. The increment for women's colleges in more recent periods has been practically negligible, while that for the professional schools is different from that for women's colleges only in the fact that they seem to be recovering appreciably from a tendency to decline.

TABLE CXI

INCREMENTS OF ENROLMENT FOR EACH TYPE OF HIGHER INSTITUTION FOR EACH PORTION OF THE WHOLE PERIOD COVERED BY THE STUDY

GROUP	1888-89 TO 1898-99		1898-99 TO 1908-9		1908-9 TO 1915-16		1915-16 TO 1919-20	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
I. State universities	13,295	142.6	25,232	111.5	26,350	55.1	18,958	25.5
II. Other public institutions	6,630	107.9	14,042	109.9	9,568	35.7	7,934	21.9
III. Private universities	11,751	171.9	12,295	66.1	15,955	51.6	10,880	23.2
IV. Men's and coeducational colleges	5,837	18.4	23,954	63.6	19,377	31.5	19,832	24.4
V. Women's colleges, class A	2,863	139.0	3,951	80.3	1,255	14.1	268	2.6
VI. Schools of law, medicine, dentistry, pharmacy, and veterinary medicine	22,655	89.5	2,011	4.2	1,879[a]	3.8[a]	5,576	11.6
ALL	63,031	77.3	81,485	56.4	70,626	31.3	63,448	17.6

[a] Decrease.

The chief conclusion from the results of this method of comparison is that, except for the last two groups considered, the recent proportions of growth are not widely dissimilar. All but the women's colleges show large increments during the last portion of the full period.

The distribution of students to the several types.—What has already been shown makes clear that the several types of institutions and the groups into which they fall have not always played the same proportionate parts in the whole field of higher education. To be able to indicate more definitely what these relative numerical positions have been, Table CXII and Figure 70 have been prepared. They are sufficiently self-explanatory to require

little in the way of comment. The men's and coeducational colleges held the position of dominance at the outset. By the end of the first decade, however, they had yielded it to the institutions of the university and polytechnic type, and were also exceeded at this time by the group of professional schools. After the first portion of the period, which was one of decline, they seem, roughly speaking, to have held the same proportionate position until the end of the period being considered. The state universities, other public institutions, and private universities continued to gain in importance throughout the period, doing so apparently at the expense of

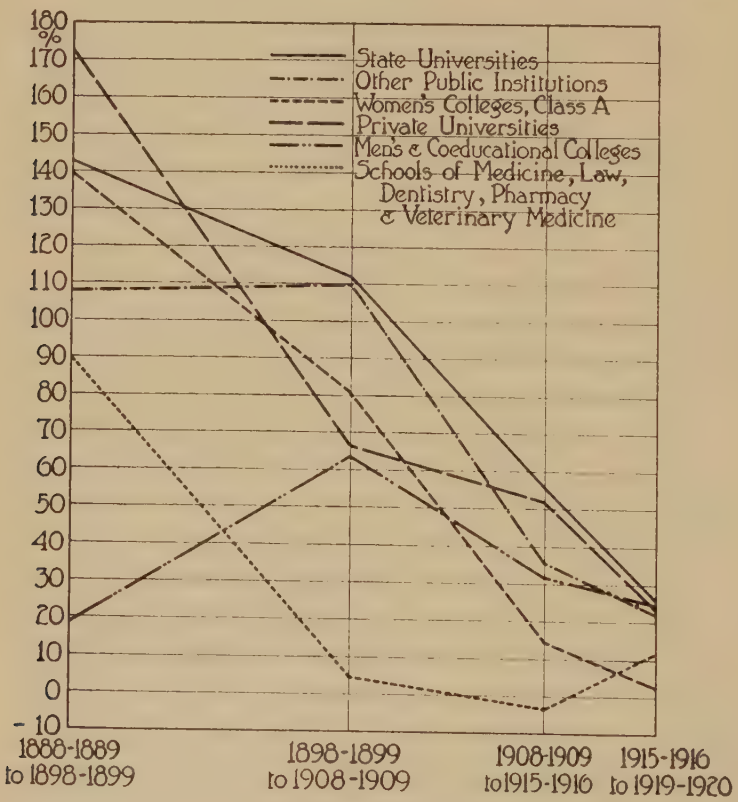

Figure 69

Increments of enrolment for each type of higher institution for each portion of the whole period covered by the study

the professional schools of medicine, law, dentistry, pharmacy, and veterinary medicine. In so far as the latter were units in the former group of institutions, this means that they were gaining at their own expense. In other words, the proportion for institutions of university and polytechnic type were not gaining at the rapid rate shown in the table and figure, although

TABLE CXII

NUMBERS OF STUDENTS ENROLLED IN EACH TYPE AND IN GROUPS OF TYPES OF HIGHER INSTITUTIONS DURING 1888-89, 1898-99, 1908-9, 1915-16, AND 1919-20, AND THE PERCENTAGES THESE ARE OF THE TOTAL ENROLMENT IN HIGHER INSTITUTIONS IN THE SAME YEARS

GROUP OF INSTITUTIONS	1888-89		1898-99		1908-9		1915-16		1919-20	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
I. State universities, other public institutions, and private universities	22,307	27.4	53,983	37.4	105,552	46.7	157,425	53.1	195,197	54.2
II. Men's and coeducational colleges	31,813	39.0	37,650	26.1	61,604	27.3	80,981	27.3	100,813	28.0
III. Women's colleges, class A	2,060	2.5	4,923	3.4	8,874	3.9	10,129	3.4	10,397	2.9
IV. Schools of medicine, law, dentistry, pharmacy, and veterinary medicine	25,313	31.1	47,968	33.2	49,979	22.1	48,100	16.2	53,676	14.9
V. Totals of II and III	33,873	41.5	42,573	29.5	70,478	31.2	91,110	30.7	111,210	30.9
VI. Totals of I and IV	47,620	58.5	101,951	70.5	155,531	68.8	205,525	69.3	248,873	69.1
VII. All groups	81,493	100.0	144,524	100.0	266,009	100.0	296,635	100.0	360,083	100.0

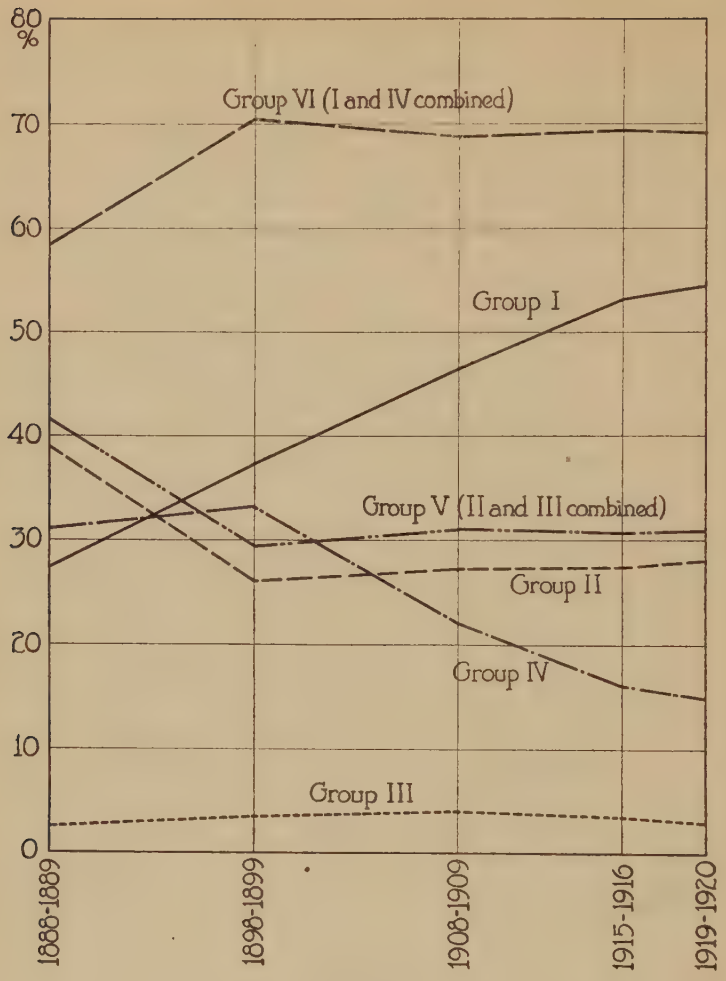

Figure 70

Percentages of students enrolled in each type of higher institution and in each group of types in 1888-89, 1898-99, 1908-9, 1915-16, and 1919-20 (Group I, state universities, other public institutions, and private universities; II, men's and coeducational colleges; III, women's colleges, class A; IV, schools of medicine, law, dentistry, pharmacy, and veterinary medicine; V, II and III combined; VI, I and IV combined)

from what has already been said about the growth of the university professional schools included in Group IV, it may be assumed that they were gaining at least to a slight extent. After the close of the first portion of the period, Groups I and V combined and Groups II and III combined held their relative positions consistently. Women's colleges, class A, alone seem never to have attained a large place numerically in the education of the youth of the country.

The essence of this part of the study is that there was a reversal of the positions of numerical importance of the two chief types of institutions represented in the study, the separate colleges of liberal arts and the university and polytechnic type of institution, and that after attaining the upper level, the latter has kept it ever since. This fact of numerical dominance may have had something to do with the degree to which separate colleges have in recent years introduced the modifications described in Chapter XXII which are in the nature of abbreviations of the full four-year period of unapplied education.

Proportions of students in the third and fourth college years.—Table CXIII and Figure 71 report the results of an inquiry into the efficiency of several types of higher institutions in holding students into the upper collegiate years. This phase of the study was done entirely by means of an examination of annual catalogues and other reports of the institutions concerned. A large sample was taken for each type of institution, involving from ten to twenty per cent of the institutions, and usually a somewhat similar proportion of the students enrolled. The degree of representativeness of the sampling may be judged to some extent by its magnitude. For the first year considered, 1888-89, it included a total of 14,600 students, which is about 18 per cent of all students considered in earlier portions of the present inquiry. For the last year, 1919-20, it included 74,754 students, or more than a fourth of those represented in the earlier phases. There was no opportunity to select particular colleges, since those were included for which there was something approaching a series of catalogues in the University of Minnesota Library, so that the same institution would be represented over as large a proportion as possible of the entire period covered.

The classification of students was determined by what was reported in the catalogues or other publications used. Except for certain professional schools this presented no serious problem. For these it was necessary to examine into entrance requirements and to decide the classification of students on this basis. For instance, where a medical school administered admission requirements of two years of college work, first year medical students were classified as third year college students. This was not a completely accurate classification, as some who entered doubtless had three or even four years of college credit. It could not, however, be far from the true situation. In order to keep the data for all groups comparable

only students of the first four years were introduced into the totals. For the purposes of Table CXIII and the accompanying figure there were computed the percentages which students in their first two collegiate years were of all those who were in their first four years. Increasing efficiency of a type of higher institution is, therefore, indicated by a decline in the percentage of those enrolled in the first two years, which signifies that the complementary percentages of students in the two upper years were increasing.

TABLE CXIII

PERCENTAGES WHICH STUDENTS ENROLLED IN THE FIRST TWO COLLEGIATE YEARS ARE OF ALL STUDENTS ENROLLED IN THE FIRST FOUR COLLEGIATE YEARS OF SEVERAL TYPES OF HIGHER INSTITUTIONS

GROUP OF INSTITUTIONS	1888-89	1898-99	1908-9	1915-16	1919-20
I. State universities, other public institutions, and private universities	63.3	62.3	62.3	63.6	68.8
II. Men's and coeducational colleges ...	61.5	62.1	63.3	63.9	68.2
III. Women's colleges, class A	64.2	57.2	56.1	57.7	54.5
IV. Group I and schools of medicine, law, dentistry, pharmacy, and veterinary medicine	68.7	62.8	62.1	61.1	66.2

The percentages for women's colleges (Group III) show the most notable tendency to change. These institutions seem to have gained in efficiency with one slight exception throughout the entire period—even during the last portion of the period when all other types experienced rapid increases in the proportions of students of the lower classifications. Owing to the large extent of deferred registration accumulating during the war period, these last large increments must for the most part be left out of account in passing judgment on efficiency in the point in question. Group I, made up of state universities, other public institutions, and private universities, except during the last portion of the period just referred to, shows no conspicuous change. This group seems to have been holding its own. When combined with schools of medicine, law, dentistry, pharmacy, and veterinary medicine, it shows marked progress in the direction of larger proportions in upper years. On the other hand the men's and coeducational colleges lost ground almost consistently through the period. This trend is not striking, but it is, nevertheless, unmistakable, and, in contrast with the situation shown for institutions with recognized opportunities for occupational training, should give pause to the friends of the separate liberal arts college. Even if it be admitted that the data for the professional schools in Group IV, because they include some students classed as in the third and fourth collegiate years, exaggerate the decline, the results of the comparison

have serious implications. When joined with the facts of transfer of students from these colleges to institutions where professional curricula are offered, as well as with the facts of elimination, as shown in the preceding chapter, the separate colleges are gradually becoming more predominantly institutions for the training of students on lower collegiate levels.

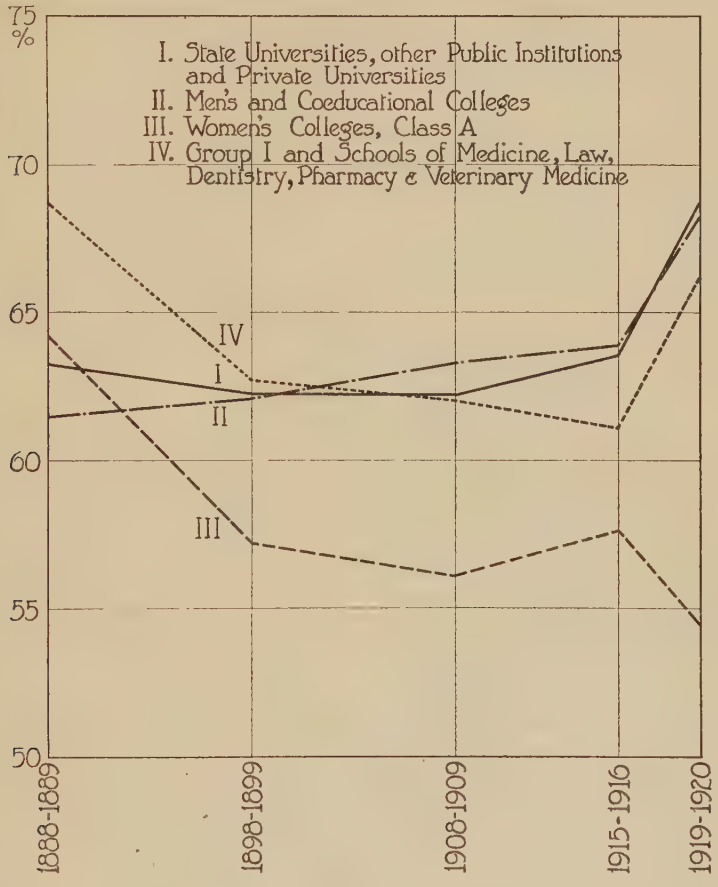

Figure 71

Percentages which students enrolled in the first two collegiate years are of all students enrolled in the first four collegiate years of several types of higher institutions

IV. The Shift within the University

The method and materials of the second study.—It remains to report the most significant portions of a study made to detect any changes of enrolment within the university having bearing on the work of the forces of reorganization in higher education. Although in its beginnings this special study aimed to include from 20 to 25 institutions of the university type, on

account of the impossibility of securing one or another type of data needed, the number was finally reduced to 18. Six were eastern institutions, viz., Columbia, Cornell, Harvard, Pennsylvania, Princeton, and Yale, while the remainder were from the Middle West, South, and West, and included the universities of California, Chicago, Colorado, Illinois, Iowa, Minnesota, Nebraska, Northwestern, Tulane, University of Washington, Washington University, and Wisconsin. A total of 22,672 students represented in the study at the opening of the period increased to 92,509 at its close, sufficient numbers to warrant acceptance as valid of the tendencies discovered.

In brief, the method of the study was that of ascertaining the enrolments by sex and totals in (a) the first two years (to be referred to as junior college years) of the colleges of liberal arts, (b) the second two years (to be referred to as the senior college years) of the same unit, (c) the graduate school, and (d) each professional school, and then from these obtaining the total enrolment. This was done for stated years a half decade apart beginning with 1894-95 and ending with 1919-20. Special students in the liberal arts unit had to be omitted from the final computations because of the impossibility of distributing them to the junior college and senior college groups. With these data available it was possible next to compute (a) the percentages which all liberal arts students were of the total enrolments in the universities, (b) the percentages which junior college liberal arts students are of the total enrolments, (c) the percentages which senior college liberal arts students are of the total enrolments, and (d) the percentages which senior college liberal arts students are of the total liberal arts enrolment, as well as other measures of trend of enrolment, two of which will be presented at a later point in this section.

The sources of data were the university catalogues and occasionally the presidents' reports. In a number of instances, to clear up perplexing points or to secure data of comparable sorts it was necessary to appeal to the university registrars for special information.

The addition of professional schools.—Before presenting the figures disclosing any important movements of the student body within the universities, it is pertinent to report briefly a generalization on the addition of professional schools during the period of twenty-five years. This can be done by giving first the full count of such professional units which were parts of these 18 universities in the stated years. These were, not including the colleges of liberal arts or graduate schools which are to be found in all the eighteen, 76, 88, 93, 106, 117, and 133, respectively, for the school years 1894-95, 1899-1900, 1904-5, 1909-10, 1914-15 and 1919-20. The average numbers of professional schools per university were for these same school years, respectively, 4.2, 4.9, 5.2, 5.9, 6.5, and 7.3. The figures indicate a steady growth. There is little need of mentioning the particular schools that were added. During the earlier and even the later half decades of the

quarter century included additions were of the units that have been associated with professional training for a half century or more, such as medicine, law, engineering, dentistry, etc. But the more frequent additions in recent half decades were in commerce and education.

The shift in eastern universities.—Table CXIV and Figure 72 present the percentage measures to which reference has been made above. They show that the percentage of the total student body registered in the liberal arts unit was roughly constant throughout the period of a quarter century. At the same time they show slight tendencies of the percentage of the total enrolment, which was to be found in junior college years of the liberal arts college, to rise, and of the percentage of the total enrolment which was to be found in senior college years to decline. *The most notable change shown in the percentages is that of the steady decline which those enrolled in the senior college of the liberal arts unit are of the total liberal arts enrolment.* While not rapid, it is none the less unmistakable.

TABLE CXIV

PERCENTAGE DISTRIBUTION OF STUDENTS TO CERTAIN DIVISIONS OF SIX EASTERN UNIVERSITIES

GROUP	1894-95	1899-1900	1904-5	1909-10	1914-15	1919-20
I. Per cent liberal arts is of total university enrolment	33.5	35.2	32.8	33.6	33.7	35.3
II. Per cent junior college liberal arts is of total	18.1	19.7	18.3	19.6	19.7	21.0
III. Per cent senior college liberal arts is of total	15.4	15.5	14.5	14.0	14.0	14.3
IV. Per cent senior college liberal arts is of total liberal arts	45.9	43.9	44.1	41.7	41.6	40.6

The shift in western universities.—As compared with eastern institutions, the total liberal arts enrolment appears to be gaining in percentage of the whole rather than merely holding its own. The gain is more noticeable for the junior college than for the senior college years. The proportion of the college of liberal arts enrolled in its two upper years shows no such consistent tendency, having increased during two half decades, declining during the third, and held its own during the fourth. (Here, again, it is unwise to draw conclusions from marked changes in the fifth half decade because of the proportion of deferred enrolments showing their influence in 1919-20.)

As the western universities tend to enroll larger proportions of women than do the eastern institutions studied, it was desirable to ascertain the influence of women upon the percentages found, or, rather, to note tendencies for men alone. This was done, as may be seen in the table and figure, by computing for the western group two additional proportions, the

percentage of men in the junior college years and the percentage of men in the senior college years of the liberal arts unit. The percentage in both divisions is seen to drop rapidly during the first two half-decades. The former then recovers during the succeeding ten years—probably through the influence of preprofessional requirements, as in medicine—and finally attains an approximate half of the enrolment in these two years. In the senior college years, however, the decline is greater and it does not recover as in the case of the junior college years. Women continue to be by far the dominant portion of the upperclass student body in liberal arts.

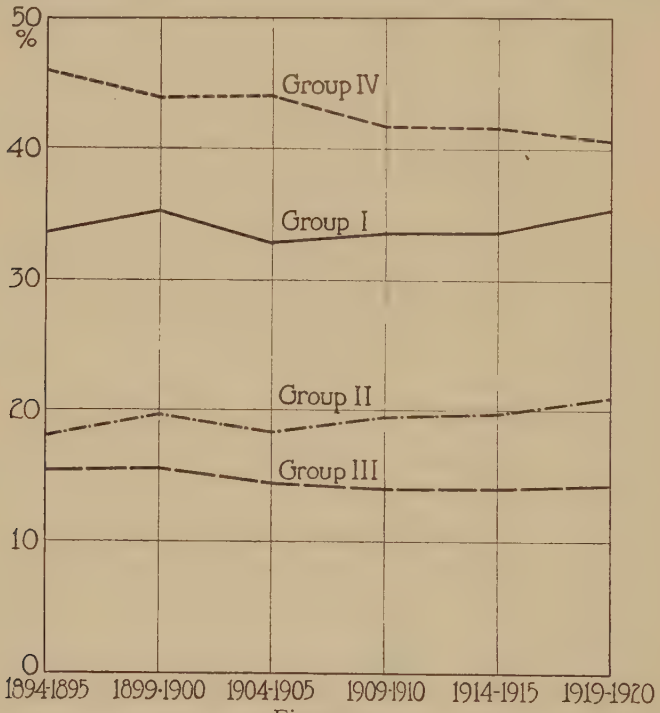

Figure 72

Percentage distribution of students to certain divisions of six eastern universities (Group I, percentage liberal arts enrolment is of total; II, percentage junior college enrolment in liberal arts is of total; III, percentage senior college enrolment in liberal arts is of total; IV, percentage senior college liberal arts is of total in liberal arts)

It is clear that the increasing numbers of women have operated to cover the real tendencies of the shift from non-professional to professional lines on the part of men at the end of the first half of the liberal arts course or during its second half. Professionalization not having affected women to the extent that it has affected men, they remain in predominant portions in unapplied lines. It may be concluded, therefore, that the tendency for a

decline in the proportion of students in the upper years of the liberal arts college found in eastern universities is even more marked for men in western universities. This seems also to be in harmony with the declining proportion of students in the upper years of separate colleges, as shown near the end of the preceding section, as well as with the transfer of students from these separate colleges to institutions of university and polytechnic type as shown in the chapter immediately preceding.

TABLE CXV

PERCENTAGE DISTRIBUTION OF STUDENTS TO CERTAIN DIVISIONS OF TWELVE MID-WESTERN AND WESTERN UNIVERSITIES

GROUP	1894-95	1899-1900	1904-5	1909-10	1914-15	1919-20
I. Per cent liberal arts is of total university enrolment	36.5	36.9	36.1	37.2	41.3	41.7
II. Per cent junior college liberal arts is of total	25.2	23.2	22.3	24.1	26.7	29.1
III. Per cent senior college liberal arts is of total	11.4	13.7	13.8	13.1	14.6	12.6
IV. Per cent senior college liberal arts is of total liberal arts	31.1	37.2	38.3	35.3	35.3	30.1
V. Per cent junior college men are of all junior college students in liberal arts unit[a]	60.6	47.8	41.5	45.9	49.3	48.5
VI. Per cent senior college men are of all senior college students in liberal arts unit	60.1	51.3	36.9	36.0	41.4	38.1

[a] These percentages are based on figures for eleven institutions only, as it was not possible to secure for the University of Iowa the distribution of students by sex.

The decline of students, especially of men, in the senior college years of non-occupational curricula would without doubt be even greater than shown if account could have been taken of those registered in special occupational programs announced in the catalogues but administered by the liberal arts unit. Such curricula are not offered in all colleges of liberal arts in universities, but they are sufficiently numerous to warrant the statement made. In the arts college of one state university whose catalogue was examined reference was made to ten such curricula, viz., journalism, business administration (five differentiations), chemistry, mental testing in social clinics, landscape decoration, and forestry; in another there were five, viz., home economics, household administration, economic entomology, and chemistry; in another, two, viz., commerce and journalism; and in still another, four, viz., chemistry, graphic and plastic arts, physical education for men, and physical education for women. It may be seen from these

illustrations that some of the lines represented, e.g., commerce and journalism, have in other institutions developed to such an extent that they have been erected into schools.

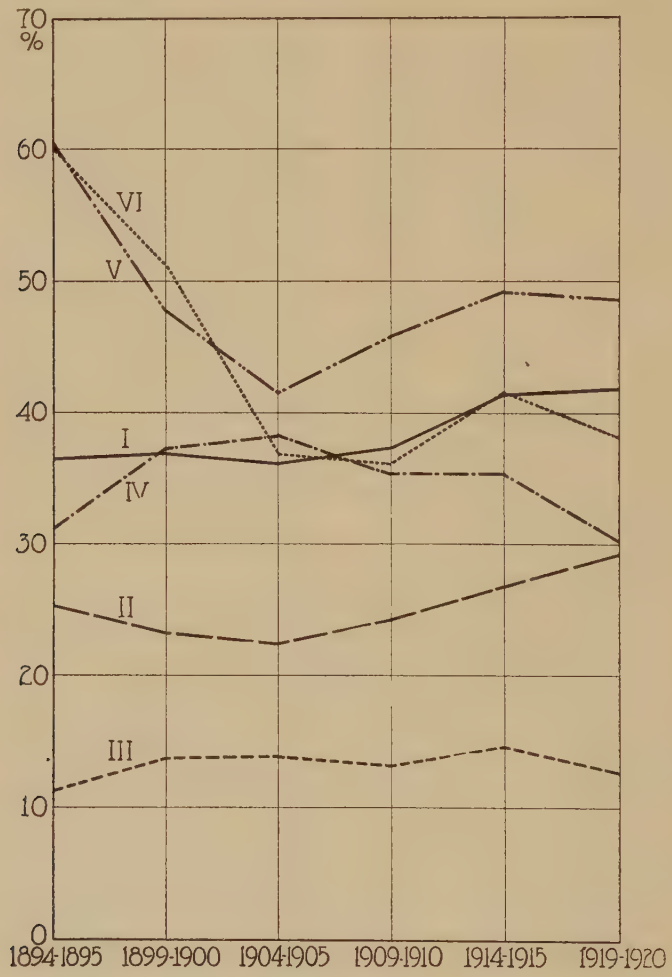

Figure 73

Percentage distribution of students to certain divisions of 12 mid-western and western universities (Group I, percentage liberal arts is of total university enrolment; II, percentage junior college liberal arts is of total; III, percentage senior college liberal arts is of total; IV, percentage senior college liberal arts is of total liberal arts; V, percentage junior college men are of all junior college students in the liberal arts unit; VI, percentage senior college men are of all senior college students in the liberal arts unit)

Professionalization of training for women is lagging behind that for men, as may be judged from the increasing proportion of that sex in senior college years of the liberal arts unit. If recent movements touching the social status and occupational life of women may be taken as an earnest of developments of tomorrow, the shift that has taken place for men will also soon follow for women. The erection of departments of education into schools taking place of late is one step in this direction, although, of course, registration in this unit is not restricted to women.

V. Significance for the Problem of Reorganization

The trend of enrolment in higher institutions as shown is in accord with other evidences of the forces of reorganization presented in the foregoing chapters of Part III. This is true of the rapid growth which has resulted in the numerical dominance of institutions of the university and polytechnic type, in the slow but unmistakable decline of the proportion of students in the upper years of separate colleges, and in the declining proportion of men in the senior college years of the liberal arts unit of universities, a decline unaccompanied by an equivalent reduction in the proportion of men in the junior college years of the same unit. It harmonizes with the advancing age of the college entrant in that it shows an increasing tendency to terminate the period of general education somewhere near the middle of the college course. It comports with the changing organization of curricula of liberal colleges which now almost universally require specialization in senior college years, specialization which, whatever may be the intent of college authorities in prescribing the major system, is entered upon by students with confidence in its occupational significance. It is in line with the modifications within separate colleges which are in the nature of accommodations to the desire of students for an abbreviated period of non-occupational education, as well as to the appearance of the junior college as an administrative unit in some of our larger universities. This trend and these and other changes and characteristics disclosed in preceding chapters point to the advisability of a recognition of the line of demarcation making itself felt increasingly in the region of the middle of the college period, a line of demarcation that, in turn, has its meaning for the junior college movement.

CHAPTER XXV

THE EUROPEAN ANALOGY

I. The Junior College Prefigured

The conception of the junior college as the culmination of the American secondary school and as the feature of reorganization of our school system which would usher in the real university is not one of recent origin. It had its beginnings at least as far back as the middle of the last century. Distinctions between the conception in its earliest form and that which now characterizes it are, that it was not then designated by the name it has come to carry in our own time and that it was not as often thought of as a separate two-year unit superimposed upon the unit below or connected in some way with other schools in the system. In its first stages it seems to have been conceived of more nearly as an upward extension of the secondary school without a line of demarcation between the two levels of training.

The idea of upward extension took its root in a comparison of European (more especially German and French) school systems with the American, a comparison which seemed to some of the educational leaders of the period to put the latter in an unfavorable light. Among the respects of inferiority of our own system most frequently mentioned were the shorter duration of the period of secondary education here and the consequent responsibilities of the higher schools for much of general education left uncompleted by the lower units.

One of the first, if not the first of the American leaders in higher education to call attention to the differences referred to and to urge reorganization somewhat along the lines of the European plans, was Henry Phillips Tappan. Even as early as 1851, the year before he assumed the responsibilities of the presidency of the University of Michigan, in a volume dealing with university education,[1] he made recommendations looking to the establishment of real universities to begin at the point where preliminary education should leave off. To him education had

> two states—the preparatory and the executive. . . . After a right worthy discipline of the man, by this preparatory course [which he describes], we next proceed to the executive part of . . . education. Under this denomination we embrace professional studies, as Law, Medicine, and Theology, or the studies relating to any course of life for which the individual may design himself.[2]

His convictions as to the nature and organization of universities he found embodied in those of Germany, for he said

[1] Henry P. Tappan, *University Education*. New York: G. P. Putman. 1851.

[2] *Op. cit.*, p. 12.

We have spoken of the German Universities as model institutions. Their excellence consists of two things: first, they are purely Universities, without any admixture of collegial tuition. Secondly, they are complete as Universities, providing libraries and all other materials of learning, and have professors of eminence to lecture on theology, law, and medicine, . . . in fine, upon every branch of human knowledge. . . . Collegial tuition in the German Universities does not exist, because wholly unnecessary, the student being fully prepared at the Gymnasium before he is permitted to enter the University. Without the Gymnasium, the University would be little worth.[3]

At another point in the volume he said,

In Germany the Gymnasia are really the Colleges. . . . and in America those schools commonly called Academies, and indeed other classical schools, are of the nature of a college, only of a still lower grade, and more elementary. In passing from the classical school to the college the studies are not essentially changed, nor is the kind of discipline.[4]

The same general viewpoint is re-emphasized in the following:

For the first period [of education], various institutions have sprung up, from the most elementary schools to Gymnasia or Colleges. For the second period there is only one institution—the University. . . . The University thus stands where the first period of education closes, and where the other begins.[5]

Later, after asking the question as to the form to be taken by this institution, he answered it by referring to the University of Paris, "The Universities of England before they were submerged in the Colleges," and the universities of Germany.[6]

Another educational leader who early sensed the desirability of development along somewhat similar lines was William Watts Folwell, now president emeritus of the University of Minnesota. In his inaugural address, delivered in 1869, he urged relegating to the secondary schools

those studies which now form the body of work for the first two years in our ordinary American colleges. It is a clear case that such a transposition must by and by be made. . . . How immense the gain . . . if a youth could remain at the high school or academy, residing in his home, until he had reached a point, say, somewhere near the end of the sophomore year, there to go over all those studies which as a boy he ought to study, under tutors and governors! Then let the boy, grown up to be a man, emigrate to the university, there to enter upon the work of a man, . . .[7]

In a note written at the time of the publication of the volume in which the address appears Dr. Folwell gives an inkling of the origin of his idea:

Away back in the '50's when the speaker was a schoolboy he enjoyed the friendship of Professor Charles A. Joy of Columbia College, who had taken up his life work after a long period of study in German Universities. From him came the knowledge of the

[3] *Op. cit.*, pp. 44-45.
[4] *Op. cit.*, p. 49.
[5] *Op. cit.*, pp. 83-84.
[6] *Op. cit.*, p. 90.
[7] W. W. Folwell, *University Addresses*, pp. 37-38. Minneapolis: H. W. Wilson Co. 1909.

gymnasium, the splendid secondary school, fitting German boys for the work of men in the university. During nearly twenty years of teaching, military service, and business the idea incubated. With great trepidation the speaker ventured, on this (for him), most important occasion to announce the principle of a system of public education, with its natural trinity of epochs, primary, secondary, superior. That it was not openly and vigorously denounced, was due to the fact that it was not understood, or, if understood, was not taken seriously.[8]

Subsequently President Folwell mapped out a plan in harmony with his conception of the proper division of work between the secondary school and the university and during his period of administration steps were taken in the direction of putting it in operation. This plan he described in an address delivered before the National Education Association meeting in Minneapolis in August, 1875. In the course of this address he foreshadowed a surprisingly large proportion of the contentions now commonly raised in support of the establishment of junior colleges. While space cannot be spared for epitomizing any considerable number of them, a few paragraphs illustrating the trend of the argument should be quoted, the first of which reverts again to the suggestions afforded in the European organization:

> While American experience formed the guide and principle of the arrangement under discussion, that of foreign countries, in which education has been authoritatively organized could not be left out of account. The new secondary department will be found to correspond in *location, in object,* and *in scope,* with the gymnasia and real schools of Germany and the lyceums of France and Switzerland. Upon this point I am happy in having the conclusive testimony of President McCosh, as given in a paper having no reference to this institution. . . . Dr. McCosh says: "The course of instruction in the gymnasia and real schools . . . embraces not only the branches taught in our high schools, but those taught in the freshman and sophomore classes of our university courses." My own observation not long before, brought me to the same conclusion in substance. Thus, while undertaking to open a new path, we are still keeping on the safe ground of home and foreign precedent and experience.[9]
>
> * * *
>
> This plan implies and calls for the upbuilding in the state of a class of high schools of more generous scope than have been generally contemplated . . . The work of the first two years of the college is the work of the secondary school, and there it can be done most efficiently and economically. Turn this work over to the high school, and that institution has at once its function, and the whole of it.[10]

While some steps were taken toward putting President Folwell's plan in operation in the University of Minnesota, it appears to have been too far in advance of its time to be at once realizable, and in a subsequent administration it was set aside for the type of organization more generally current in the country.

[8] *Op. cit.*, p. 38.

[9] *Op. cit.*, pp. 103-4.

[10] *Op. cit.*, pp. 108-9.

Insistence upon the relevancy of the European organization for the American system continued with increasing frequency toward the end of the century and later. It will probably be conceded without argument that of these more recent advocates of the type of reorganization referred to the most persistent and influential was President William Rainey Harper. Among others in university circles who have done much to popularize the junior college idea are Edmund J. James, Alexis Lange, and David Starr Jordan. Harper seems to have inspired the establishment of the first junior colleges. It is not to be assumed, of course, that either he or any other leader of the period relied solely or even primarily on the argument of analogy. It is indicated merely that, as implicit in the quotations from President Folwell, it entered as an important element into the thinking that urged reorganization. On account of its frequency of recurrence it seems desirable to scrutinize with some care the pertinence of the analogy, by attempting a comparison of French and German secondary schools on the one hand with those of the United States on the other.

Comparisons are attempted with respect to ages of students, curricula and courses, the chief function of the institutions, etc. In each respect comparisons are beset with difficulties. Since the argument for reorganization from analogy was formerly presented with greater frequency than more recently, it is hardly essential to the comparison to bring the descriptions of the European systems concerned down to date, a procedure that would be particularly difficult at the present time.

II. Ages of Students Compared

In the German system.—Assuming that the German boy begins the work of the *Vorschule* when six years of age, and is promoted regularly he would be nine when entering the *Sexta,* the first year of the gymnasium, which is the predominant type of German secondary school. Assuming a continuance of regular promotion during his progress through the institution, he would be seventeen when entering the *Oberprima,* its ninth and highest class, and nearer eighteen on completing its work and when equipped for admission to the university. If these assumptions were borne out by the facts, the German student would be in the last year of his secondary school at approximately the same age as the American student is a senior in high school.

We have shown earlier in this report (Chapter IX) that the median age of seniors in certain American high schools, which we have no reason to believe are atypical in this respect, is about 17½ years, and of freshmen entering Harvard University and the University of Minnesota, respectively, 18 years, 4 months, and 18 years, 6 months.

Certain students of the German secondary school, however, have made clear that the rate of promotion in it is such as to delay the student's arrival in the *Oberprima* and, consequently, in the university. Bolton says that during his visits he "was much surprised to find in the upper classes pupils who were no longer boys in appearance, but full-grown men, many of them with mustaches. They appeared to be fully as old as freshmen and sophomores in American colleges." He cites figures supplied by Dr. Juling, reporting on Prussian gymnasia, showing that for the year 1890, only 19 per cent of the graduates were under 19 years, 26, 27, and 28 per cent being, respectively, 19, 20, and 21 years and over.[11] Referring to the ages of students in the Royal Gymnasium in Leipzig, he says that the average age of pupils who had just entered the lowest class (*Sexta*) was 10 years, 10 months, and 16 days, which, from what has already been said, indicates an average retardation at this point of something short of two years. "The average of the class just finishing was 19 years, 10 months."[12] If one could be certain that ages in both instances were computed on identical bases, this would mean that, owing to delayed progress, although there are twelve years in each of the two systems compared, students in the German school were approximately a year and a half older on the completion of their secondary education than American high school seniors when they receive their diplomas. It is safer to say that they were from one to two years older. At another point[13] Bolton shows the average ages of students in the last three classes of several German secondary schools, mostly gymnasia, to have been 17.6, 18.7 and 20.1 years, respectively. The first of these figures is not far from that for the ages of seniors in American high schools, and this fact, with the ages for the two last years of the gymnasium, leads to a conclusion of even greater difference in ages on the completion of the respective secondary schools than drawn from the Royal Gymnasium in Leipzig. Russell, citing data of Thomas Alexander, shows that the average age of students in *Oberprima* in the Friedrich-Wilhelms Real-gymnasium at Stettin in 1913 was 19.0 years,[14] which is again approximately a year and a half in advance of the age of seniors in American high schools as shown.

The upshot of all this is, as well as can be judged from the data referred to, that the student of the gymnasium at the time of graduation is at about the same age as the student in American colleges near the end of his freshman or well started on his sophomore year.

[11] Frederick E. Bolton, *The Secondary School System of Germany*, pp. 12-13. New York: D. Appleton & Co. 1900.

[12] *Op. cit.*, p. 15.

[13] *Op. cit.*, p. 16.

[14] William F. Russell, *Economy in Secondary Education*, p. 5. Boston: Houghton, Mifflin & Co. 1916.

It is relevant to point out that the retardation noted obtains despite the long school year, which extends over 240 days. Schools are in session forty to forty-two weeks of six days each. This is approximately a third in excess of the typical length of school year in the United States.

In France.—The French lycée for boys extends over what is assumed to be seven years of work, divided into two cycles, the first of four and the second of three years. The work of its first year is entered upon after the boy has completed the work of a primary school curriculum covering four years, in turn preceded by a year in the infant class, which he normally begins at the age of six years. The full curriculum being twelve years in length, the French boy, presumably, arrives in the last form of the lycée when 17 and completes it when he is about 18 years of age, or not far from the age at which the high school student with us completes the work of that institution. Although no data on age distributions for the French schools were available to the writer, there is little occasion to believe that there is not some extent of retardation in the lycée as there is in the gymnasium. Promotions are by form and not by subject, the practice in American high schools, and a failure in two major subjects is very likely to result in the student's repeating the work of a form. It is seldom indeed that a boy spends less than a full year in a form. There is, moreover, a minimum age of admission without special permission to the examinations for the *baccalauréat* taken at the end of each of the last two years of the second cycle, which leads to the belief that there is no encouragement of acceleration. The difficulty of these examinations points in the same direction, as the proportion of passes is well under 50 per cent.[15] There are, moreover, minimum ages for admission to professional schools which seem to indicate delay in completion rather than acceleration. For example, the age of admission to the *Ecole Navale* is not less than 17; to the *Polytechnique,* over 17; to the *Ecole Normale Superieure,* over 18; and to the *Ecoles Superieures d'Agriculture,* over 17. It is not unlikely that there is as much retardation relatively as in the gymnasium, although it may be that completion of the work of the lycée finds the student somewhat younger than the German youth at the end of the gymnasial curriculum.

The French school year at the same time is shorter than the German, but is somewhat longer than the typical one in the United States.

III. Curricular Comparison

Hindrances to a comparison.—A number of obstructions present themselves as soon as an attempt is made to compare curricula of American schools with those of German and French secondary schools, and they are

[15] The description of the French system on which these interpretations are based is given in *Special Reports on Educational Subjects, Secondary and University Education in France,* Vol 24, pp. 280 ff. London: Wyman & Sons. 1911.

not primarily due, as in the comparison of ages, to a lack of data. The difficulty in comparison is contributed to in no small part by distinct differences in tendencies as to subjects emphasized. Something of these differences is shown in Table CXVI. The first column of figures here resulted from computations for all work excepting gymnastics taken by students in their last two years in the Prussian gymnasium as set forth by Bolton.[16] This curriculum contained the option during each of these two years of two hours of English or Hebrew. The computations as made assumed that the student would elect the former. Except for this option the curriculum is fully prescribed. The second column of figures is taken from Table XIX of Chapter III, and represents the distribution of work taken by 200 students during their first two years in the College of Science, Literature, and the Arts of the University of Minnesota. Both columns are in *percentages* of total time in class each week given over to each subject or subject group. If *numbers of clock hours* had been used in the comparison instead of percentages, on account of the large amount of time spent in class each week by the German student the figures for the gymnasium would have exceeded those of our American illustration at almost every point. It is the *proportionate* emphasis which is significant in this comparison. Some allowance must be made for the lapse of years intervening between the two situations represented, but even after this has been done significant differences would persist. They are largely in the emphasis in the gymnasium of traditional materials like ancient language and mathematics, and by the 200 students in work in the mother tongue, modern foreign language, science, and the social subjects. Differences as marked as these are of such a degree as to thwart effective comparison in particular subjects.

If comparison were made with the curricula of the real gymnasium or the oberrealschule rather than of the gymnasium, it would find more approach to similarity than here shown. Larger proportions of the total time are devoted to the mother tongue in the oberrealschule, to modern foreign language and science in both types, and less to ancient language in both types than in the gymnasium. The gymnasium, however, is, as already indicated, the predominant type of German secondary school and enrolls much the largest total number of students.

Another obstructing difference is in the maintenance of different schools for students with different intentions toward higher education in Germany and segregated education for boys and girls in both Germany and France. Couple with this the contrast of the European secondary school as a distinctly selective institution and the American aspiration toward universal education on this level, and there results a situation which demands with us much more in the way of elective programs. Such factors do anything but

[16] *Op. cit.*, p. 171.

facilitate comparison. Another complicating circumstance is the differing lengths of secondary school periods. We have seen them to be seven and nine years long, respectively, in France and Germany, whereas in the United States they are still predominantly four years in duration. Cutting across the European periods, as does our organization, interferes with satisfactory comparison, since with their longer periods both French and German schools can introduce the more characteristically secondary school subjects earlier than our schools and can extend their study over longer periods of years.

TABLE CXVI

PERCENTAGES OF WORK TAKEN IN CERTAIN SUBJECTS AND SUBJECT GROUPS (a) BY STUDENTS IN THE PRUSSIAN GYMNASIUM DURING THEIR LAST TWO YEARS AND (b) BY TWO HUNDRED STUDENTS DURING THEIR FIRST TWO YEARS IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS OF THE UNIVERSITY OF MINNESOTA

SUBJECTS AND SUBJECT GROUPS	GYMNASIUM, UNTERPRIMA AND OBERPRIMA	TWO HUNDRED STUDENTS IN THE UNIVERSITY OF MINNESOTA
Mother tongue	10.0	23.3
Ancient language	40.0	1.5
Modern foreign language	13.3	19.8
Foreign language	53.3	21.3
Mathematics	13.3	3.1
Science	6.7	13.1
Social subjects	10.0	25.7
Philosophy, psychology, etc.	6.7	7.3
Fine arts	...	2.0
Occupational	...	4.2
TOTALS	100.0	100.0

Comparison of courses in Latin.—Two subjects, Latin and mathematics, will be used to illustrate both the limitations and the values of curricular comparison. The study of the former of these subjects is begun in the lowest gymnasial class, the *Sexta,* when, as we have seen, the student is typically ten to eleven years of age, and it is continued throughout the nine-year period. In the Prussian gymnasium of the nineties a total of 62 hours, or a shade less than an average of 7 hours per week for each year were devoted to it. Ignoring the difference in length of school year, if the student in the typical American high school carries the full course of study in Latin, he will have a total of only 15 hours,[17] or less than a fourth of the

[17] Assuming periods 45 minutes in length. The typical duration of periods with us is 40 to 45 minutes.

work in this subject prescribed in the German gymnasium. Manifestly, the German student should be able to cover vastly more ground during his progress through his institution, and he should also be much farther advanced at any age point in the course. We ought not to be surprised, therefore, that the lad in *Untertertia,* the fourth class in order from the beginning, who, according to Bolton's figures, averages 14.5 years of age, is reading Caesar's *Gallic War,* whereas, the American boy does not undertake it until the year following. Nor is there cause for wonder if more than a single author is read during any one year. Among the materials read in this subject in *Obersecunda,* when the boy averages 17.6 years of age, practically the average age of the American high school senior, is Livy xxi. American college catalogues, picked up at random, show that this is standard content for freshman courses. Again, the student in *Oberprima,* the last year, reads Tacitus, typically material in sophomore college courses. Once again, there should be no cause for surprise in these last contrasts, in view of the longer period of study of Latin in the gymnasium and the fact that the average *Oberprimaner* is not much younger than the American college sophomore.[18]

The study of Latin is likewise begun in the first year of the lycée, the total number of class hours throughout the seven years being much more than twice the amount that would be devoted to the subject by an American high school student during four full years. The *Gallic War* is also undertaken earlier—in the fourth form, which is the third when counting upward from the beginning year. Mention of other classics read would indicate that students in the last year are reading materials to be found in freshman and sophomore college courses with us. Comparison is especially difficult, however, because of a notable tendency in the lycée to read from several works during the same year.[19]

Comparisons of courses in mathematics.—The allotment of time to mathematics in the gymnasial curriculum in Prussia in the nineties, according to Bolton, was 34 hours, and the subject still retains this prominent place. This is three times as large an amount as is given to it by the American student who carries three units during his stay in high school. An examination of course outlines discovers the practice in the gymnasium of making progress in several subdivisions of mathematics during any single year, rather than pursuing them separately as is done with us. Trigonometry, for example, is carried in part through a period of four years. It is begun in *Untersecunda,* where the boys average 16.6 years of age. This is two years earlier than it is typically taken in American schools, where it is

[18] Interpretations based on curricular descriptions not only in Bolton, *op. cit.,* but also James E. Russell, *German Higher Schools,* Chapters II and XVI. New York: Longmans, Green & Co. 1913.

[19] Interpretations based on F. E. Farrington, *French Secondary Schools,* pp. 192-99. New York: Longmans, Green & Co. 1910.

most often studied as a freshman college subject, and a year earlier than when taken, as it often is, in the last year of our four-year high school. Space may be saved in the comparison by quoting Bolton, who says, "The gymnasial graduate has about the same mathematical acquirements as the average college student at the end of his freshman year."[20] Tabulation of courses in mathematics intended for freshmen as shown in a random selection of college catalogues indicates that these are trigonometry, college algebra, and analytic geometry.

Comparison of the lycée for this subject is more difficult because a student has the option of two or more divisions in which the amounts of time devoted to mathematics differ. No curriculum, however, seems to carry the student beyond the courses of the American freshman college year.

Additional conclusions from the curricular comparison.—The differing percentage distributions of Table CXVI suggest that, while the French and German secondary schools make greater total progress in subjects like Latin and mathematics, the deficiency is likely to be at least in part compensated for by greater emphasis in the United States along other lines. There is greater proportionate stress on training in the mother tongue, on science (except in the realgymnasium and oberrealschule), and on the social studies, and this should bring our students relatively farther in these lines during equal numbers of years of training. It would be difficult, if not impossible, to establish this for a certainty, especially on account of the greater variability in the American program and on account of the differing content of the subjects of study, but there is some presumption in its favor.

At the same time comparison seems to warrant another inference, one which touches the total amount of ground covered in the subjects represented as affected by the type of organization of education in operation. Our typical organization of an eight-year elementary school, a four-year high school, and a four-year college appears to cut across the German secondary school period, if not also the French, at two points. We thereby distribute to three different schools the responsibility for training during the period of years concerned, each of which acts in ways to some extent independent of the others and without full knowledge of what they are attempting. There must in such a situation be some extent of superfluous overlapping in the work covered, overlapping which is a waste of time and which prevents the covering of as much total ground in a subject as would otherwise be possible. It is therefore to be anticipated that bringing more of these school years into a single institution would operate to bring our students farther on in the same period of years.

[20] *Op. cit.*, p. 223.

IV. The Point of Termination of General Education

One characteristic the gymnasium and the lycée have in common which is not at the same time possessed by the traditional American four-year high school, and this is the fact that they terminate for the student his period of general education. The university to which the German or French student is advanced on the completion of the work in the lower school is for him a place of specialization. The American student who continues his education after concluding his high school course, on the other hand, in the majority of instances moves on to a continuation of his period of general education, a continuation which, in terms of the organization of college curricula is two years in length. Partial exceptions are students who pursue curricula in engineering, agriculture, etc. The work of these two years for most students is made general by prescriptions that assure contact with each of the main fields of learning. This fact was demonstrated in Table XX in Chapter III. At the close of this two-year period the student is required to select a major subject, which we have seen him to look upon as occupational specialization and which in a majority of cases subsequently serves him occupationally. This interpretation of the end of the first two college years as the typical American termination of general education for those going on has the support also of the foregoing chapters showing the extent to which colleges have made accommodations to the desire of students for a shortened period of non-occupational education, the appearance of the junior college division in universities, and the trend of enrolment in higher institutions which finds diminishing proportions of students in the last two years of colleges of liberal arts, whether these are separate or parts of universities.

V. The Congruity of the Analogy

The major conclusion from the comparisons in the foregoing paragraphs is, that, while the analogy of French and German organization of secondary and higher education with that proposed by those who urge the upward extension of our own high school by the addition of junior college years is far from complete, there are significant points of similarity. On account of the retardation in the German secondary school seen to obtain at the time that the analogous relationship was most frequently emphasized, the average age of the graduate did not fall far below that of our present college sophomores. There is no reason to believe that this situation for the lycée is essentially different. Although the comparison of respective curricula is beset with difficulties, there is sufficient evidence to indicate that the analogy does not entirely break down here, despite the obviously more democratic function of the American high school and college. In Latin both lycée and gymnasium carry the student through the materials covered by such of our college sophomores as continue this subject. In mathematics the progress

is as far as through content usually covered in our freshman college year. These facts are especially significant in view of the approach to equivalence of ages of students in the last two years of the gymnasium and of the first two years of the American college. Perhaps the most relevant element of the analogy is to be found in the fact that the first two years of American collegiate education as now administered are distinctly a part of general education and that the years beyond this are now and are increasingly becoming the period of specialization. The college and university with us seem to be in the anomalous position of standing astride the line of division between general and special education. The appropriateness of this element of the analogy impresses one especially when he recalls the approach to equality of ages of gymnasial graduates and college sophomores.

The somewhat shorter period of general education in these European systems, even after allowances are made as has been done for retardation, is, it is not unreasonable to suppose, in part attributable to economies resulting from their longer periods of secondary education. As has been suggested, our organization cuts across the periods of German and French secondary education at two points. To distribute the work of this period to three distinct schools as we do is to invite wasteful duplication which must result in a longer period of years to cover the same ground or the covering of less ground in a given period. It seems probable, therefore, that, should we effect reorganization by introducing the junior college years as an upward extension of our secondary school, we would simultaneously be taking steps toward shortening the typical period of general education, toward making room for an enlarged and enriched content during the same period, or in both these directions at once.

CHAPTER XXVI

THE AIMS OF SECONDARY SCHOOL, COLLEGE, AND UNIVERSITY

As the reader moved past the exhibits of the results of the forces of reorganization in higher education reported in the foregoing chapters of Part III, it is not impossible that he may from time to time have wondered whether the momentous changes reported are paralleled to any extent in the best thought of the day. It was some such speculation as this that prompted the making of the study and comparison of secondary school, college, and university aims and functions to which attention is directed in this chapter.

The results of the study will be set forth in four sections, the first three devoted to separate analyses for each of the three units concerned, and the fourth to a comparison of the aims of all three for such significance as it affords.

I. Aims and Functions of the Secondary School

The sources and the method.—The presentation first to be made concerns the aims and functions of the American secondary school. The materials used, with one exception, appeared in print as addresses, as articles in periodicals, or as parts of volumes dealing to a greater or less extent with the purposes of the unit under consideration. The exception is the Cardinal Principles of Secondary Education,[1] which is a statement prepared by the Commission on the Reorganization of Secondary Education headed by Clarence D. Kingsley as chairman. With this exception, also, they are all statements of individual leaders in education, most of them in close touch with the concerns of the secondary school. In order to economize space the references to the materials used are omitted, but those persons whose statements have been utilized are the following: Bobbitt, J. F. Brown, J. S. Brown, Colvin, C. O. Davis, C. W. Eliot, W. Farrand, Flexner, H. H. Foster, Hanus, E. N. Henderson, Hollister, Inglis, C. H. Johnston, W. D. Lewis, Lull, Paul Monroe, Parker, Rapeer, Rynearson, Snedden, W. H. Snyder, Stout, and L. C. Ward. The method of selection was merely that of searching in educational volumes and periodicals for what purported to be more or less complete recent statements of aims and functions. The years of publication of these statements are: 1904, 1; 1909, 1; 1910, 1; 1912, 1; 1914, 4; 1915, 4; 1916, 3; 1917, 2; 1918, 4; 1920, 2; 1921, 2. Since all but four of them appeared during 1914 or subsequently and none before 1904, they may be considered as representing the current conceptions of the rôle of the modern high school.

[1] United States Bureau of Education, *Bulletin*, 1918, No. 35.

The method of analysis was very similar to that reported in Chapter II in connection with the presentation of the current conceptions of the special purposes of the junior college and the results are therefore subject to the same qualifications growing out of the likelihood of misconstruction of the meaning of statements made and consequent violence done to the intent of each author. Notwithstanding this difficulty the present writer feels that the results contain a reasonably faithful composite picture of the concepts of purpose of the secondary unit in our system of education, with sufficient validity for use in this investigation.

The aims and functions found in the analysis.—The results of the canvass are presented in Table CXVII and Figure 74. A few words of explanation of each of the categories should be of service in obtaining a more definite notion of their import.

TABLE CXVII

AIMS AND FUNCTIONS OF SECONDARY EDUCATION AND THE NUMBERS AND PERCENTAGES IN A TOTAL OF TWENTY-FIVE STATEMENTS RECOGNIZING THEM

AIMS AND FUNCTIONS CALLING FOR VALUES IN	NUMBER	PER CENT
1. General or liberal training	20	80
2. Meeting life's needs	10	40
3. Civic-social responsibility	25	100
4. Morality and character	18	72
5. Religious training	11	44
6. Domestic responsibility	10	40
7. Training for leadership	3	12
8. Recreational and aesthetic aspects of life	23	92
9. Occupational efficiency	25	100
10. Physical efficiency	20	80
11. Intellectual efficiency	7	28
12. Mental discipline	3	12
13. Democratic secondary education	20	80
14. Recognition of individual differences	22	88
15. Exploration and guidance	14	56
16. Selection for higher education	3	12
17. College preparation	17	68
18. Recognizing adolescence	11	44
19. Training in fundamental processes	6	24
20. Training the senses	2	8
21. Community service	2	8

The aims of *general or liberal training* (No. 1) posited by four fifths of all those whose statements have been included in the analysis requires no explanation further than to say that it is usually referred to in such terms as the "general education" or "culture" essential for all. As in the case of the aim for *training for life's needs* (No. 2), most of its meaning is to be derived from subsequent categories. The difference between these

two types of statement may be understood usually to be that the former refers more commonly than does the latter to the training essential for all, whereas the latter pertains to all essential aspects of training, including those peculiar to the needs of the individual as a participant in the world's work or otherwise.

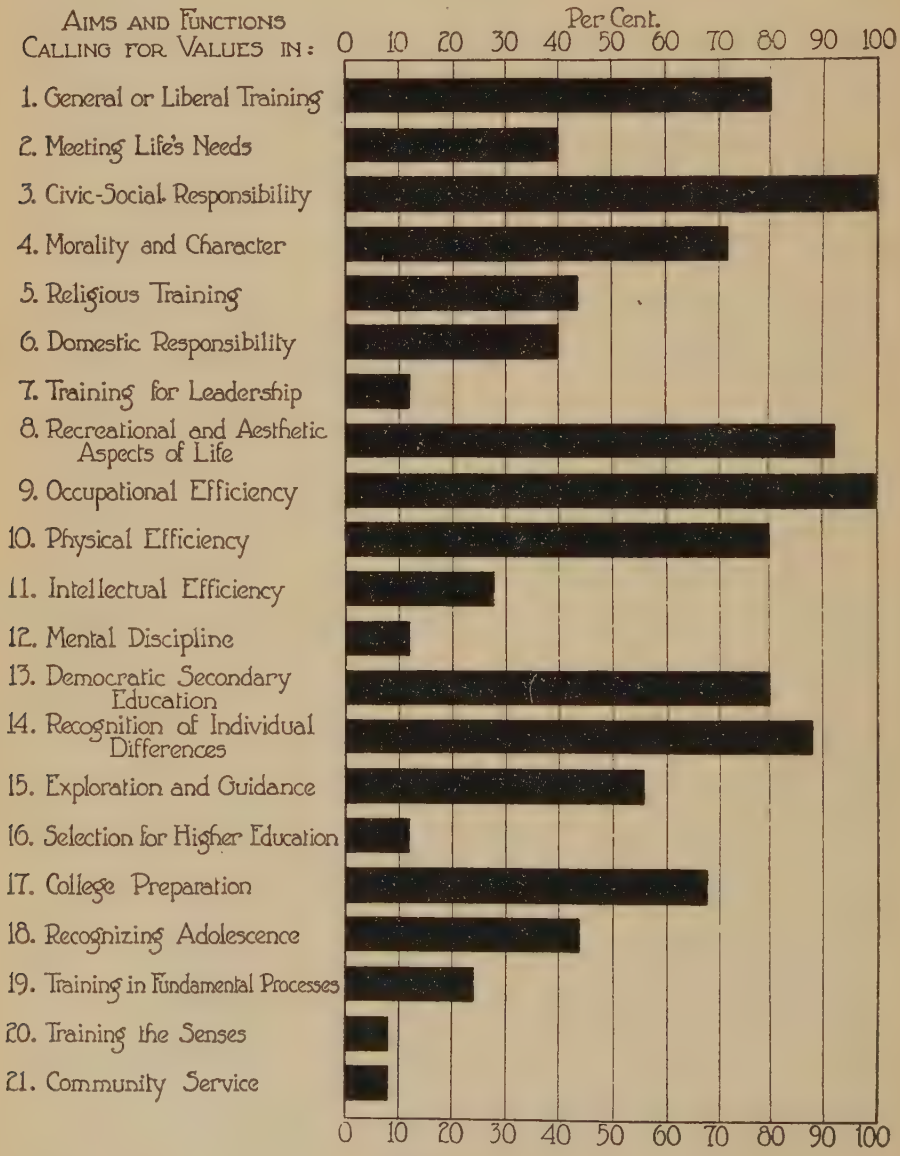
Aims and Functions Calling for Values in:
Per Cent.
0 10 20 30 40 50 60 70 80 90 100
1. General or Liberal Training
2. Meeting Life's Needs
3. Civic-Social Responsibility
4. Morality and Character
5. Religious Training
6. Domestic Responsibility
7. Training for Leadership
8. Recreational and Aesthetic Aspects of Life
9. Occupational Efficiency
10. Physical Efficiency
11. Intellectual Efficiency
12. Mental Discipline
13. Democratic Secondary Education
14. Recognition of Individual Differences
15. Exploration and Guidance
16. Selection for Higher Education
17. College Preparation
18. Recognizing Adolescence
19. Training in Fundamental Processes
20. Training the Senses
21. Community Service
0 10 20 30 40 50 60 70 80 90 100

Figure 74

Aims and functions of secondary education and the percentage in a total of 25 statements recognizing each

The statements analyzed are unanimous in incorporating emphasis upon the necessity of giving training for *civic-social responsibility* (No. 3). Closely related to this aim—in fact, practically inseparable from it—is the one demanding training for *morality and character* (No. 4), posited by almost three fourths of all statements consulted. And intimately related to both these aims are the three immediately following, *religious training, training for domestic responsibility,* and *for leadership.* As usually discussed in the statements made, the first of these would lend support to Aims 3 and 4, and is conceived along broad undenominational lines. The second, an objective more commonly stressed as applicable to both sexes, is in essence an aspect of training for civic-social responsibility. The leadership contemplated in Aim 7 by the few who propose it is of a civic or social sort. If generously conceived, Aim 3 may be understood to comprehend the vital aspects of Aims 4, 5, 6, and 7.

In the aim for *training in the recreational and aesthetic aspects of life* (No. 8), recognized in one form or another by almost all the sources examined, we have an important rôle of secondary education, with relationships to, but hardly more than collaterally incorporated by, the group just discussed. In a few instances this aim is narrowly conceived, but for most of the authors it has wide meaning, touching life in ways profoundly essential.

The aim immediately succeeding, *occupational efficiency* (No. 9) is represented in a full count of the statements. A small proportion accept it in a somewhat qualified form, others—a larger proportion—insist upon the provision of a wide range of vocational training, while still others do not make clear the extent of occupationalization they would approve; but all would afford opportunities for training to achieve this objective.

Physical efficiency (No. 10) is another of the aims for which most of these leaders, eighty per cent in fact, demand recognition in the secondary school.

The difference between those statements classified under *intellectual efficiency* and *mental discipline* (Aims 11 and 12) is essentially that those proposing the former balk at the acceptance of the latter in the undiscriminating form in which usually advocated, asking rather for a high level of mental performance, and insisting upon mental efficiency along essential lines as an objective consciously to be striven for, rather than as a by-product of the educative process, as this value was formerly conceived. On the other hand, in the literature canvassed are a number of remonstrances against the acceptance of the doctrine of mental discipline in the indiscriminate sense of the pervasive character of training in curricular materials bearing little or no demonstrable relationship to the needs of life.

Those whose statements were classified under the achievement of *democratic secondary education* (Aim 13) insist that the schools giving work on

this level make provisions for all the children of all the people, not primarily for the financially and mentally more fortunate. This would require the *recognition of individual differences* (Aim 14), as well as *exploration and guidance* (Aim 15)—exploration in the sense of aid in guidance by affording the student opportunities for trying out a variety of experiences, as well as being tried out by them. *Selection for higher education* (Aim 16) is not often called for in this body of literature because comprehended by the preceding aim and also because some of the writers object to the former process of rejection of students implicit in this process when narrowly understood.

Preparation for higher institutions (Aim 17) is still to be retained as an objective for the group of students for whom advanced training is appropriate, according to fully two thirds of these leaders whose statements have been consulted. In an important sense this preparation is analogous to the occupational training (Aim 9) to be provided those not going on, and in this sense it would be appropriate to classify it under that head, rather than separately.

Almost a half of the entire group emphasizes the desirability of *recognizing the nature of the students at adolescence* (Aim 18), a period into which they come during the early teens and to some extent previously. According to a fourth of the group, the secondary school must give *training in the fundamental processes* (Aim 19), i.e., in the subjects which constitute the tools of learning, such as oral and written expression, reading, computational skills, etc. Two stress the need of giving *sense-training* (Aim 20) and the same number *community service* (Aim 21) in the immediate rather than remote sense.

The following are among those aims or functions named once each in the statements examined: co-ordinating the fields of learning with which contact is made, training in the use of scientific method, establishing habits, cultivating interests, imparting information, etc.

Distinction between aims and functions.—A second brief consideration of the categories found to be frequently recognized, i.e., by at least a fourth of the statements examined, will make apparent a difference of type beginning with Aim 13. The difference can be characterized by designating all of the preceding as *aims* and those beginning with Aim 13 as *functions,* the latter being in the nature of a purpose more proximate than the former, and one which must be performed in order to facilitate the attainment of the more nearly ultimate aims.

Summary of secondary school aims and functions.—Leaving out of account objectives infrequently advocated, a composite of the statements urges that a general or liberal training be provided in the modern secondary school with the following as major objectives: training toward civic-social responsibility broadly conceived to include moral, religious, and domestic aspects;

training for the recreational and aesthetic aspects of life; training toward physical efficiency; and training for occupational efficiency (for those going on, collegiate preparation). At the same time the processes of training are to be maintained at as high a mental level as possible, with the aim of achieving intellectual efficiency in these important aspects of living. As facilitating the achievement of the foregoing aims for any large proportion of the population, the following functions must also be performed: democratizing secondary education, recognizing individual differences, providing for exploration and guidance, recognizing the nature of the student at adolescence, and providing training in the fundamental processes.

II. College Aims, Past and Present[2]

Sources and method.—The study of college aims differs from that dealing with objectives in secondary education chiefly in the fact that it includes a comparison of those advocated for the college of today with those current a half century or more ago. This comparison brings out certain similarities and certain differences that should be helpful in any attempt to clarify thinking on the functions appropriate to each of the three institutions with which we are concerned in this chapter.

The materials used in the comparison of aims, past and present, were statements, more or less complete, of purposes of the college as found in books and periodicals (not including newspapers). There were twenty-seven statements representing the earlier period under consideration, eight of these appearing in books, fifteen in periodicals, and four elsewhere, as in special publications or in reports of proceedings of educational societies. Five of the statements in periodicals appeared in educational journals and ten in other periodicals such as the *Galaxy*, the *Atlantic Monthly*, the *North American Review* and the *New Englander*. For the most part they were prepared by persons connected with higher institutions, such as instructors or administrators, although lay persons are represented to some extent. Among those eminent in their day whose statements have been included are John Fiske, Daniel C. Gilman, Noah Porter, Henry P. Tappan, and Francis Wayland. The dates of imprint for this earlier group range from 1842 to 1876—through a third of a century—while the median year is 1867, more than a half century ago.

Forty such statements were used for the recent period, ten appearing in books and thirty in periodicals. A much larger proportion of this group than of the earlier group appeared in educational journals, but the lay periodicals continue to be represented to some extent by statements appearing in *Scribner's, Harper's,* etc. As with the earlier group, persons connected

[2] This section on college aims is drawn with minor modifications from a study made in collaboration by C. C. Crawford and the present writer and published as part of an article appearing under the same title in *School and Society* 14:499-509, December 3, 1921.

with higher institutions prepared most of these statements, many of which seem to have first found expression in the form of addresses. If space were taken to name the authors of these statements, the reader would recognize many as eminent in the field of higher education today. The dates of imprint range from 1909 to 1921, the median year being 1918, i.e., half the recent group of statements appearing since 1917.

TABLE CXVIII

COLLEGE AIMS FOUND AND THE NUMBERS AND PERCENTAGES OF STATEMENTS RECOGNIZING EACH

(Total statements representing past, *27*; present, 40)

AIMS AND FUNCTIONS CALLING FOR VALUES IN	PAST		PRESENT	
	Number	Per Cent	Number	Per Cent
1. Mental discipline	22	81.5	14	35.0
2. Liberal education	25	92.6	30	75.0
3. Civic and social responsibility	8	29.6	30	75.0
4. Morality and character	15	55.6	25	62.5
5. Religious training	13	48.1	14	35.0
6. Domestic responsibility	1	3.7	6	15.0
7. Training for leadership	3	11.1	11	27.5
8. Physical efficiency	1	3.7	3	7.5
9. Speech	7	25.9	2	5.0
10. Manners	2	7.4	0	...
11. Occupational training	4	14.8	11	27.5
12. Preprofessional training	7	25.9	13	32.5
13. Recreational and aesthetic aspects of life	4	14.8	8	20.0
14. Training for life's needs	2	7.4	10	25.0
15. Knowledge for its own sake	1	3.7	4	10.0
16. Development of scholarly interest and ambition	2	7.4	11	27.5
17. Opportunities for specialization	1	3.7	1	2.5
18. Selection for higher education	0	...	4	10.0
19. Exploration and guidance	0	...	7	17.5
20. Co-ordination of the students' work	0	...	2	5.0
21. Attention to individuals	0	...	2	5.0
22. Democratizing college education	0	...	3	7.5

The statements found in books in both groups were located by using the card catalogue of a university library. Those in the earlier group appearing in periodicals and elsewhere were found by the laborious process of examining bound volumes. Such statements for the recent period were found by using the *Readers' Guide*, only such references being examined as, from their titles, appeared to give promise of containing more or less complete statements of the aims of college education. Personal bias did not enter into the selection, nor were any principles of choice operative other than

those apparent from what has already been said, the objective being a fair representation of the opinions current during each of the two periods.

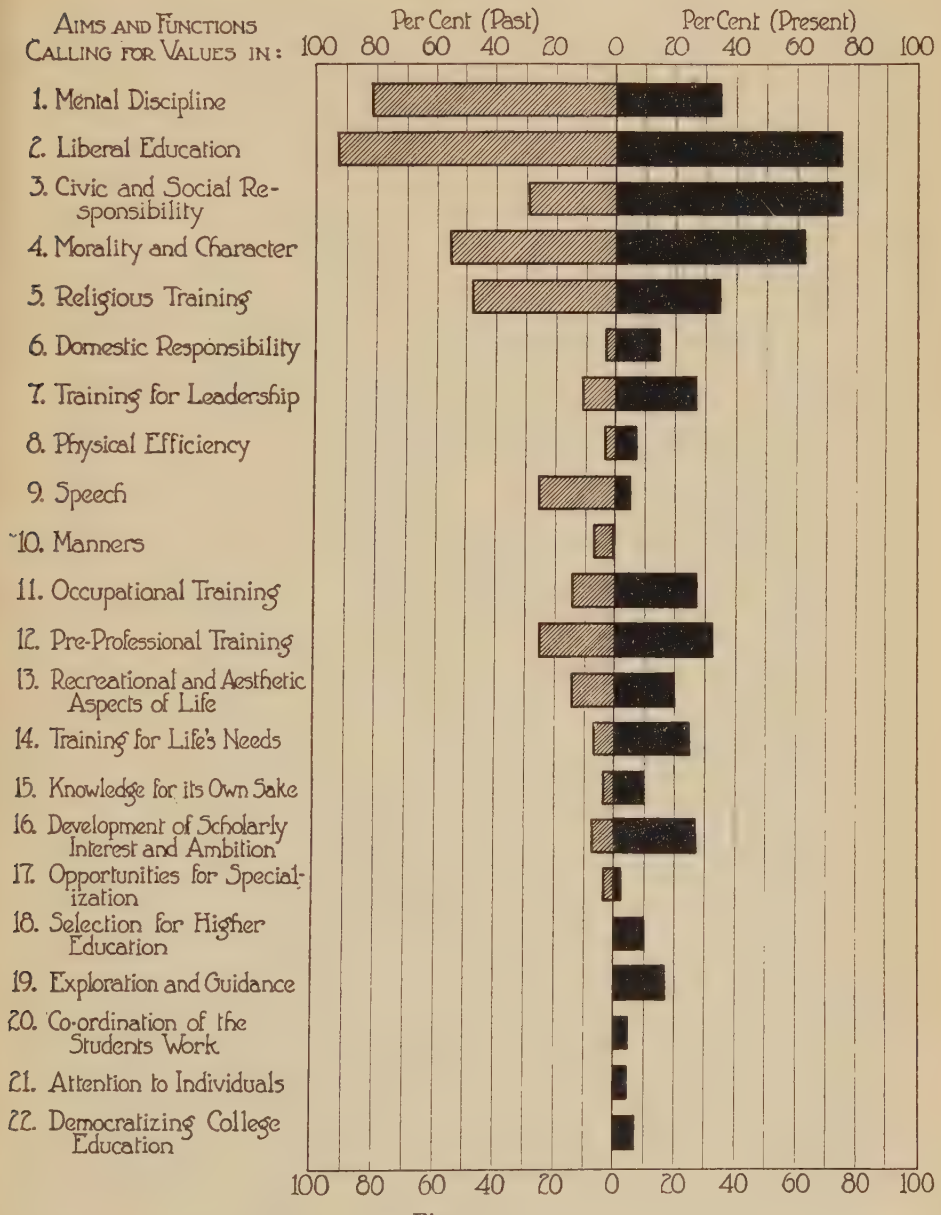
Aims and Functions Calling for Values in:
Per Cent (Past)
Per Cent (Present)
100 80 60 40 20 0 20 40 60 80 100
1. Mental Discipline
2. Liberal Education
3. Civic and Social Responsibility
4. Morality and Character
5. Religious Training
6. Domestic Responsibility
7. Training for Leadership
8. Physical Efficiency
9. Speech
10. Manners
11. Occupational Training
12. Pre-Professional Training
13. Recreational and Aesthetic Aspects of Life
14. Training for Life's Needs
15. Knowledge for its Own Sake
16. Development of Scholarly Interest and Ambition
17. Opportunities for Specialization
18. Selection for Higher Education
19. Exploration and Guidance
20. Co-ordination of the Students Work
21. Attention to Individuals
22. Democratizing College Education
100 80 60 40 20 0 20 40 60 80 100

Figure 75

Percentages of statements recognizing certain college aims

The method of tabulation was the same in this as in the preceding study, and the same likelihood of misrepresenting slightly the authors' meanings obtains.

The aims found and the extent of their recognition.—The accompanying table and chart set forth the aims found in the literature examined and the numbers and proportion of each set of statements recognizing each aim. The bar diagram shows a rough approximation to symmetry for the two periods, with certain interesting exceptions to which attention will be directed as the aims are elucidated.

One of the most striking contrasts to be found concerns the first aim in the table and chart, that comprehending the *disciplinary values*. While not all the writers of the modern period are prepared to relinquish claims to the validity of the disciplinary objective, those of the earlier period were well-nigh unanimous in its approval. The contrast would be even more striking if the diagram could show the *character* of the statements and not merely the proportionate recognition. The utter abandon with which many of these earlier writers advocated the disciplinary purposes may be seen in the following illustrative statement, that the ancient languages and mathematics "are fundamental to all intellectual culture, and, when in any degree mastered, diffuse an influence over all the other departments of knowledge." Statements like this are not without parallel in the modern period, but they are much less common. Doubtless, many more in the modern period would give at least qualified endorsement to the disciplinary purpose, if their attention were directed to its omission from their statements. But they left it unmentioned because at the time of writing other objectives loomed larger in their minds.[3]

"Liberal education" or *"liberal culture"* is the most commonly recognized objective in the earlier period and its recognition in the modern period is matched by that for only one other objective. As everyone who has tried to do so knows, it is next to impossible to generalize on the great variety of definitions of liberal training which one must meet in a study of this sort. The suggestion may be ventured that the nearest approach to the core of the meaning of most of these is, (1) that such training must be general and non-occupational rather than special or occupational, or (2) that the mind is "deepened and broadened" until it is "liberalized," until it is "made free of the world that man's intellect has conquered for us." There were a very few writers in the modern period who looked for cultural training through occupational education. Much of what is meant by the terms grouped under this head for each of the two periods is incorporated in the other aims found during the canvass made. This is well instanced by the aim next following.

[3] As intellectual efficiency (see secondary school aims) was posited by two modern writers only, the tabulations make no special recognition of the distinction before introducing them into Figure 77.

The materials on the next aim in the list, that incorporating training for *civic and social responsibilities* (Aim 3), record the second of the marked contrasts of the conceptions characteristic of the two periods. Here we have a contrast opposite in kind from that shown in the materials on the aim first mentioned: i.e., instead of dissipating, the appreciation of this aim has expanded. This enhancement has been not merely quantitative, as indicated, but qualitative as well. The aim is recognized in the earlier period by such statements as the need of training for the "duties of citizenship," or for the development of an "intelligent public opinion." In the later period emphasis is commonly placed on the "socialization" of the student so that he will be ready to "serve the age," be a "servant of humanity," and assist in "rebuilding the world." It may be said in passing that few in the earlier period suggested special training for attaining this end. In the later period almost all recognizing it recommend, specifically or by implication, the introduction of curricular materials to accomplish the purpose. The contrast to be found here comports with the movement from the individualistic manner of life and thinking of the earlier period to the modern social viewpoint.

The values of *morality and character* (Aim 4) held a prominent part in the educational thought in the earlier period and seem to have maintained that hold. As is to be anticipated from comments made on the aim immediately preceding, the social significance of this aim is more frequently emphasized today than in the middle of the last century. The *religious* aspect of training (Aim 5), likewise, receives approximately equivalent recognition in the two periods. The difference in favor of the earlier period will be, in the opinion of many readers, compensated for in the expansion of the appreciation of the social values as already indicated.

Training in *domestic responsibility* (Aim 6) is now more commonly than formerly included in the statements of college aims. In most of the literature mentioning it as a desirable objective the responsibility is laid on both sexes—on men just as much as women. It is not occupational training for women that is emphasized here, but the education that will tend to conserve the influences of the family unit in our social life.

Leadership (Aim 7) is more often posited as an aim in the recent, than in the earlier, period. The sort of leadership most often indicated is social in character, rather than the leadership of expert knowledge and skill of the specialist in some academic or professional field. As in the study of secondary school aims, it is a leadership closely related in significance to the aim of training for civic and social responsibility.

Bodily *health* (Aim 8) is infrequently mentioned as an objective in both groups of literature.

Training for effective *speech* (Aim 9), oral and written, is seldom included in present-day statements, but more often in the earlier period. This is not in harmony with what one might anticipate after noting the

almost universal requirement today of "Freshman English" in colleges, and the more common faith during the earlier period in the efficacy of training in the classics for attaining this objective. It may be that it is not often mentioned in current literature because it is assumed that the aim is being achieved, the purpose of the statements being to emphasize aspects of training likely to be neglected.

Manners (Aim 10) of college youth seem not to be a matter for concern in the recent period.

In view of the perennial emphasis of the need of developing opportunities for *occupational training,* it is interesting to note (Aim 11) that neither in the earlier period nor more recently has there been any large proportionate willingness to admit this type of education into the college. To be sure, the vocational idea shows some gain—the percentage for the recent period being almost twice that for the earlier one. Approximately a fourth of the recent group of statements urge training for occupation. The desire that the college curriculum must remain "liberal" and not become vocational is reflected also in statements of a negative type found in the materials used but not assembled in the table and chart presented: fifteen, or 55.6 per cent, of the writers of the earlier period insist that the college should *not* concern itself with occupational training; eighteen, or 45 per cent, of the writers of the later period express the same opinion. This frequent energetic negation suggests an equally frequent demand which these statements endeavor to ward off.

A somewhat larger proportion in each group are willing to concede the aim of *preprofessional training* (Aim 12). With this group have been included also those few statements stressing the description of the college as a place where the basis of subsequent specialization is laid, rather than where training for specialization goes on. The proportionate recognition attains to almost a third among the modern writers. The difference between the two periods is really greater than the numerical data indicate, since those of the earlier period were inclined to refer to indirect preparatory values, whereas the later statements speak of it in terms more nearly descriptive of current practices of arranging preprofessional courses for college students.

Training for the *proper use of leisure time* (Aim 13) through the development of abiding interests in various kinds of art finds occasional recognition in both periods, somewhat more frequently in recent years.

Preparation to *meet the needs of life* (Aim 14) was seldom mentioned formerly, but was referred to in a full fourth of the materials representing the modern period. When these "needs" were named—which was not always, owing to what seems to have been preference to refer to them in broad, indefinite terms—they fell and were grouped under Aims 3, 11, and

others already described. The statements included under this head are sometimes sweeping protests against current curricular offerings and requirements in our colleges.

The attainment of *knowledge for its own sake* (Aim 15) is uncommonly proposed as an objective in either period.

Before directing attention to the subsequent categories which differ in character, as will be pointed out later, from those already described, two additional aims which appear once only in the recent literature and are not introduced into the table and chart, should be named—"meeting the needs of the community," and achieving a state of "happiness."

The function of *inculcating a scholarly interest and ambition* (Aim 16) is emphasized more commonly in recent years than in the earlier period. This is often owing to what has seemed to the authors of the statements a decline in undergraduate scholarship, a decline which prompts them to asseverate anew the need of making the college "a place of high intellectual standards" which shall serve to "create respect for learning" and encourage the development of "a spirit of work." A few writers hold opinions that detract from the hope of performing this purpose, admitting that this will be possible of achievement with the mentally superior portion of the student body only.

The next function, *providing the basis of specialization* (Aim 17), is put forward by a single individual in each group of authors.

All subsequent purposes find their first champions in the modern period. Of these the first three are posited with frequency sufficient to merit special attention. Four statements urge the *selection* of students (Aim 18) in college for the upper levels of training, deploring the attempt to educate those who cannot or are unwilling to profit from the work beyond. Seven authors urge upon the college the task of *exploration and guidance* (Aim 19). The latter aspect of this purpose is related to Aim 18 as described. Four writers (Aim 20) criticise unfavorably the current lack of organization of the student's knowledge resulting from our present administration of courses (election, specialization of instruction, etc.) and ask for efforts at proper *co-ordination.*

In the opinion of two writers in the modern period the college has need also of giving more *attention to individual students* (Aim 21). If the desires of three of the writers are accomplished, the college will *become a more democratic institution* (Aim 22) by making its admission requirements more flexible so as to admit students with a greater variety of preparation than is now permissible and by seeing that a greater portion of the population is in attendance. A statement not cited in the table and chart points out that the college must *compensate for irregular high school courses.*

If the types of statement beginning with Aim 16 are compared with those preceding it in the list, it will be seen that they differ from them in being with few exceptions more in the nature of mediate than ultimate purposes of the college. Such purposes as mental discipline, liberal culture, development of civic and social responsibility, etc., may be looked upon, if accepted, as the final goals of college training while such purposes as developing scholarly interest and ambition, selecting for higher education, guidance and exploration, etc., are more in the nature of means to these more nearly ultimate goals. This distinction may be expressed by referring to most of those coming earlier in the list as the conceptions of the *aims* of college education and most of those remaining as its *functions*.

The materials of a college education.—During the canvass of the literature used in this portion of the study, the authors noted any mention of the appropriate curricular materials of a college education. A summary, not far from accurate, of these notations appears in the accompanying supplementary table, which includes the subjects or subject groups more frequently commended. With hardly any exceptions, the comparisons show striking shifts of interest from the earlier to the more recent period: while appreciation of the sciences, the social studies including history and philosophy, seems to have waxed during the intervening half century, that of ancient language and mathematics waned, the latter almost to the point of disappearance. The period of popular favor of modern language was just beginning when the framers of the earlier statements were writing and speaking and it was past its prime when the members of the later group expressed themselves. Interest in courses in music and the other arts and in the materials of the business world, which appeared in the later group, seemed to have been entirely lacking in the earlier writers. As is to be expected, the contrasts here apparent are closely in keeping with the shift of emphasis in the aims as just canvassed, e.g., the diminishing emphasis on ancient languages and mathematics was accompanied by the declining faith in mental discipline; the rising commendation of social subjects is associated with the extended faith in the civic-social objective. Similar parallelisms will occur to the reader for the remaining shifts in extent of commendation.

Summarizing the aims.—The salient finding of this comparison of older conceptions of college purposes with those current more recently seems to be that, both formerly and now, the institution under consideration has been regarded primarily as the place of liberal training, i.e., the place where general rather than special training shall be given. Although in the more recent period the occupational and preprofessional objectives have gained some ground, the stronghold of this predominant opinion is relatively far from taken. At the same time the conceptions of the *character* of this

liberal education have undergone extended modification. Whereas formerly the liberal training contended for was largely disciplinary in nature, it has in the intervening half century taken on a social emphasis, an emphasis demanding the recognition of civic and social responsibilities, including those of leadership and the interests of the family unit. Additional purposes receiving more frequent recognition in the modern period are the development of scholarly interest and ambition, selection, guidance and exploration, and co-ordination for the student of the fields of learning.

TABLE CXIX

SUBJECTS AND SUBJECT GROUPS COMMENDED IN THE MATERIALS USED IN THE STUDY OF COLLEGE AIMS

SUBJECT OR SUBJECT GROUP	NUMBER OF STATEMENTS COMMENDING	
	Past	Present
Foreign language	17	7
Ancient	15	4
Modern	2	2
English literature	4	7
Mathematics	12	1
Science	9	16
History	4	9
Social science	2	13
Economics	1	7
Political science	..	6
Sociology	1	4
Philosophy	2	8
Art	..	4
Commercial	..	3

III. UNIVERSITY AIMS

Sources and method.—The materials used were articles in periodicals (23 sources) and portions of books (2) dealing with university problems each presenting what may be taken to be one writer's conception of the functions of a university. Most of the articles used—16, in fact—appeared in educational periodicals such as *Education, Educational Review,* and *School and Society.* A smaller number appeared in lay and other journals.

Almost all the persons whose statements were used were connected with universities. Ten were university presidents, and all but a few of the remainder were teachers or other members of the staffs of this class of higher institutions. As may be guessed by the reader, many—a majority even—of the statements were first made as addresses, subsequently appearing in print. Thus, what is here reported is an analytical digest of the opinions of leaders in university circles of the proper range and character of university functioning.

The dates of imprint were as follows: 1912, 1 source; 1915, 4 sources; 1916, 6; 1917, 4; 1918, 4; 1919, 4; and 1920, 2. This distribution indicates that the median year of publication was 1917 and that all but a single source appeared since 1914. The sources are all of recent publication.

The method follows closely that reported in the sections dealing with secondary school and college aims.

The purposes found and their extent of recognition.—The accompanying table (CXX) and Figure 76 set forth the purposes found and the numbers and percentages of their recognition in the literature examined. Because the meaning of most of the categories is apparent, the interpretative and other comment is brief.

TABLE CXX

NUMBERS AND PERCENTAGES OF TWENTY-FIVE STATEMENTS RECOGNIZING CERTAIN UNIVERSITY AIMS

AIMS AND FUNCTIONS	NUMBER	PER CENT
1. Research	22	88
2. Instruction	14	56
3. Professional training	18	72
4. Training leaders and scholars in special lines	8	32
5. Encouraging pursuit of knowledge for its own sake	3	12
6. Liberal training	9	36
7. Civic-social training	3	12
8. Public service	5	20
9. Extension	8	32
10. Publication	6	24
11. Conserving the accomplishments of mankind	4	16
12. Selection	3	12
13. Fostering scholarly interest and ambition	2	8
14. Co-ordinating the student's knowledge	2	8

Research (Aim 1) is the function of the university most frequently put forward, being mentioned in all but three of the statements used. The *teaching* function (Aim 2) is posited by more than half of the writers. About a third of the group mentioning it approve it only as a necessary accompaniment of the research function, but the remainder place no such restriction upon it, apparently allowing to it a wider range of operation in university activities than that of being a handmaiden to research.

Training for professional life (Aim 3) is the second most frequently recognized purpose found in the literature. Most of the writers take occasion to name one or more professions by way of illustration and in the order of frequency of such mention the first seven are engineering, medicine, law, agriculture, commerce, the ministry, and education, although many other

lines are named. Under Aim 4 have been grouped the "training of leaders in science, industry, and government," the giving of advanced academic training, and "graduate training." It may be seen that there would be some justification for including these under Aim 3. If this had been done for the instances in which professional training had not also at the same time been specifically mentioned, the number and proportion reported for the latter would have been even greater than as here reported, totaling 20 recognitions, or 80 per cent.

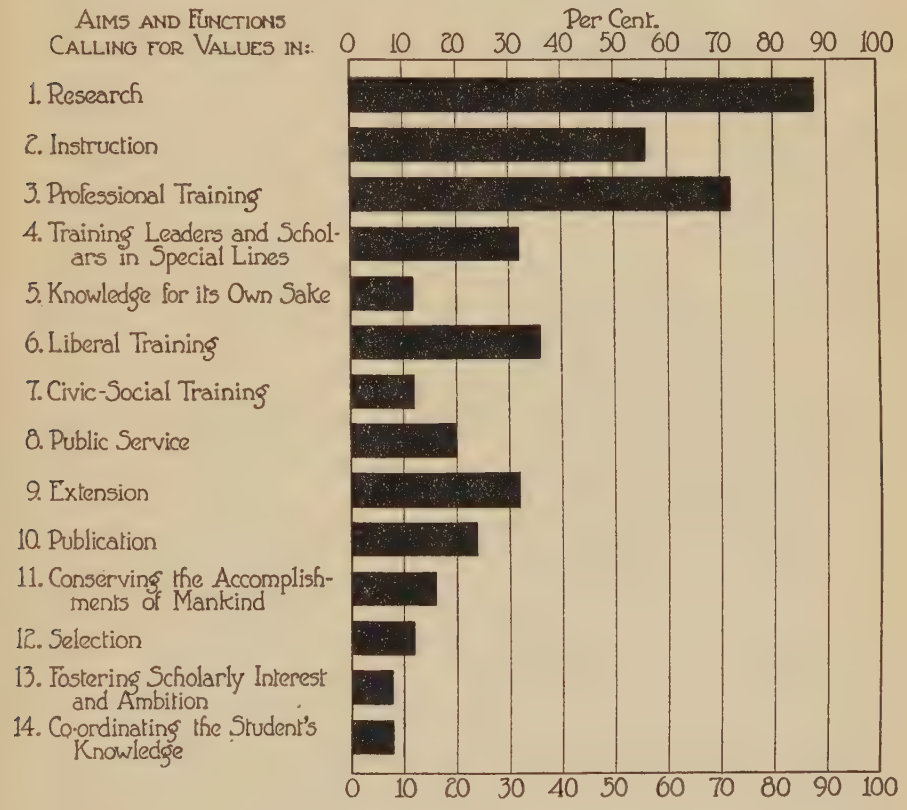
Aims and Functions Calling for Values in:
Per Cent.
0 10 20 30 40 50 60 70 80 90 100
1. Research
2. Instruction
3. Professional Training
4. Training Leaders and Scholars in Special Lines
5. Knowledge for its Own Sake
6. Liberal Training
7. Civic-Social Training
8. Public Service
9. Extension
10. Publication
11. Conserving the Accomplishments of Mankind
12. Selection
13. Fostering Scholarly Interest and Ambition
14. Co-ordinating the Student's Knowledge
0 10 20 30 40 50 60 70 80 90 100

Figure 76

Percentages of 25 statements recognizing certain university aims

Three writers would have the university *encourage the pursuit of knowledge for its own sake* (Aim 5).

Liberal training (Aim 6) is proposed as appropriate to the university in slightly more than a third of the statements. This proportion would be somewhat reduced if from it were subtracted one instance in which it is contended that broad occupational training is liberalizing and another in which it is recommended that the liberal training be restricted to the junior college years.

Civic-social training (Aim 7) is not frequently proposed as a purpose of university education.

Some writers speak of the possibility in the university of rendering *public and social service* (Aim 8). There have been tabulated here only those statements referring to the recognition of immediate community needs, not such long range service as "promoting the general welfare." Three means of being of service are suggested in the three functions next following, *extension* (Aim 9), *publication* (Aim 10), and *conserving the accomplishments of mankind* (Aim 11) in libraries, museums, etc.

The function of *selection* (Aim 12) is accepted by three writers who contend that the university should "select leaders" and "seek to discover and encourage unusual talent among all classes." With few exceptions all remaining purposes discovered during the canvass were mentioned only once in the materials canvassed. Aim 13, *fostering scholarly interest and ambition,* posited by two writers, is related to the purpose immediately preceding it. Two authors (Aim 14) would like to see efforts at knitting the work of the student into something like a related whole.

Remaining aims are: the creation of new wants, guidance, mental discipline, the fostering of the liberty of self-discipline, and providing the companionship of scholars.

Summary of university aims.—The spread of university aims proposed is much less than for either of the two institutions already dealt with. Its outstanding purposes, if we are to accept the results of the analysis presented, are research and training in the professions and other specialties, instruction to be carried forward primarily to achieve these two chief ends. Other aims, not as frequently proposed, but sufficiently prominent to merit mention in a summary, are liberal training, public service, extension, publication, and conserving the accomplishments of mankind.

IV. A Comparison of Secondary School, College, and University Aims

The method of comparison.—A comparison of secondary school, of college, and of university aims and functions, the separate presentation of which has occupied the preceding portions of this chapter, is afforded in Figure 77, which will require but a few words of explanation. It shows in an approximate way the extent of recognition of each of the aims found in the canvass for each of the three units under consideration. Except in a few instances the concepts of aim are sufficiently comparable to obviate the necessity of special comment. It is nevertheless desirable to point out here that "attention to individual students" in the college aims has been introduced as "recognizing individual differences" in Figure 77, that "college preparation" in the secondary school aims and "preprofessional training" in the college aims have been merged as *preliminary training* (No. 17),

Figure 77

Extent of recognition for secondary schools, colleges, and universities of each aim and function

that "speech" in the college aims has been introduced as training in fundamental processes, and that "professional training" in the university aims appears as occupational efficiency. Other than these no changes have been made, except for certain shifts of order, for the figure presented. It hardly requires mention that the college aims of the present day, and not of the past, have been incorporated in the second column.

General impressions afforded.—The first brief glance at the figure yields the general impression that there is a much greater *approach to unanimity in the conceptions of purposes for high schools than for either of the other two units concerned.* This impression is given by the more frequent appearance of the heavier shadings in the secondary school column.

The second general impression is that *the secondary school and college aims have much more in common than do the college and university aims.* This impression is given by the appearance of shading for the same purposes in the secondary school and college columns. Thus, for only two purposes recognized in the former column is there no recognition in the latter, and, vice versa, for but two purposes in the latter is there no recognition in the former. Otherwise there is common recognition of aims in both columns, although, of course, not often to the same extent.

On the other hand, there are ten purposes recognized in the college column which are unrecognized among the university purposes. So striking is this difference that one gains a rather distinct impression of discontinuity between the college and the university columns. The impression is emphasized by the recognition on behalf of the university (in the lowest portions of the figure) of four purposes unmentioned by those positing the aims of secondary schools and of colleges.

The similarity of secondary school and college aims and the dissimilarity of these and university aims may be shown in another way, by saying that, of the 16 purposes at all frequently recognized, i.e., by more than 20 per cent of the authors, in the secondary school column, 15 are found in the college column, and only 5 in the university column. Conversely, of the 7 aims receiving this frequency of recognition in the university column, only 3 are recognized in the secondary school and college columns.

Specific similarities and differences.—With certain exceptions to be noted, the general impressions just referred to are further supported by a comparison of recognition of each of the purposes listed. While the authors of the statements concerning secondary schools and colleges rather commonly contend that a chief aim of these schools is general or liberal training (Aim 1), those proposing the purposes of the university posit it with only half the collegiate frequency. The author of no university statement proposes training for the general needs of life (2). The purposes touching civic-social responsibility (3), morality and character (4), religion (5), and domestic responsibility (6) either do not appear or scarcely appear in the

statements concerning the purposes of the university, although they are all proposed to a greater or less extent for the two lower schools. The differences seem to reflect an assumption in the university statements of the previous performance of the purposes proposed for the college; they are *prior* functions, not often to be regarded as concomitant. The same thing may be said of training for the proper use of leisure (8), physical efficiency (10), the achievement of a democratic school system (13), recognition of individual differences (14), preliminary training (17), and training in the fundamental processes (19), except that for a larger proportion of these than of the foregoing group the collegiate recognition is slighter than for secondary schools.

The exceptions to this general tendency are to be found in Purposes 7, 9, 11, 12, 15, 16, and 21. Of these the last two are infrequently proposed for any of the three units under consideration. Despite the apparent equality of recognition of training for leadership (7) for the college and for the university, the *kind* of recognition differs widely for the two units. For the college the leadership contemplated is of a general civic or social type, while for the university it is always the leadership of the specialist. This fact does not appear in the figure, but in the original statements. Purpose 9 presents an interesting and somewhat anomalous situation. It appears that recognition of occupational interests is very commonly proposed for both the secondary school and for the university, but not nearly as frequently for the college. The high school is urged to give training for vocations; the university, for professions; but only about a fourth of those proposing the college aims insist that this unit be concerned with either.

As schools on every level must be places of intellectual training, the continuance of Purposes 11 and 12 throughout is to be anticipated, although it is deserving of comment that a larger proportion of the collegiate group than of the others hold to the threadbare doctrine of formal discipline (12). Exploration and guidance (15) persists throughout, but is appropriately more characteristic of the secondary school than of the collegiate and the university concepts of purpose. There is a growing conviction that the guidance function is primarily the function of the secondary school period when this is understood to extend over the full period of secondary education beginning with the seventh grade and ending with the fourteenth.

Research, instruction, extension, and publication (24, 25, 26, 27) are proposed for the university only.

Summary.—The findings of the comparison may be epitomized as follows: if the statements concerning aims of the three units under consideration are to be accepted, the aims of secondary school and college have much more in common than do those of college and university. In fact, if a clear line of demarcation in function among the institutions were to be made on

the basis of this study, it would fall much more naturally at the close of the college period than at its beginning. The training appropriate for the two lower units, if it followed the lines recommended in the present analysis, would be general or liberal, and would be constituted for the most part of those elements necessary for all irrespective of line of specialization. Training for the professions and other advanced specializations would be delayed to the university period, although opportunity for elementary specializations such as the "vocations" would be provided in the lowest of the three units. In addition to providing opportunities for professional training, the university would foster research, advanced instruction as a handmaiden to research, and would carry on extension activities and be an agency of publication.

Beyond these findings it appears that the friends of the college whose statements have been used in this study are generally far from agreement on what should be the purposes of that institution—much less so than the secondary school group and somewhat less so than those speaking for the university. The approximation to unanimity of the secondary school group has been noted. If these statements of leaders in this field are at all prophetic, the secondary schools of the country will soon be endeavoring to approximate common aims. The larger number of blank spaces in the university column indicates a somewhat larger approach to unanimity for this institution than for the college. The extent of agreement would have been even greater if some of those proposing aims for the university unit were not thinking primarily in terms of the college of liberal arts in aspiring but undeveloped universities. The college has much farther to go than its sister institutions before it finds its real and generally accepted functions. In this respect it is the most nondescript unit in our system of education which should be a matter of grave concern to its friends, especially as it is the eldest of the educational units now general in the American system.

The role of the junior college in clarifying college aims.—In this situation, as may be judged not only from what has been reported in this chapter but in all the chapters of Part III, the more general acceptance of the junior college idea and the adaptation of the older units to it would make for a pronounced elimination of the nondescript character of college purposes and an allocation of purpose that would be certain to bring order out of the current educational chaos and interference of function in higher education.

By extending the acknowledged period of secondary education to include two more years, placing our line of demarcation neither at the beginning nor at the termination of our present period of collegiate education, but at its mid-point instead, allocation of purpose to each unit and differentiation among them should take care of themselves with something of

automaticity. Most of the aims and functions found to be largely recognized in the secondary school group would at once rise to the new level and give to the first two years of what is now college work a new and real significance. By making these two years terminal grades in an extended period of secondary education, thought with reference to them would move toward clarification and practice would become functional. The clarification would be hastened by the extent of community of function already to be found in the results of the analyses presented. With this elevation of secondary school aims would come the partial recognition in junior college years of the occupational aim now almost denied entrance in corresponding years of the four-year college, a recognition that would foster the location of semiprofessions referred to in an earlier chapter. At the same time the purposes held to be appropriate for the period of university education would naturally apply to the last two years of college—the proper point for the beginning of specialization for one's professional destination and for the type of training appropriate to that period of life and the typical age at which the student has arrived by the time he is a college junior.

This readjustment has the advantage of being in full agreement with the irresistible forces of reorganization which have been uncovered in the preceding chapters of Part III, i.e., the advancing age of the college entrant, the increasing extent of preparation required, the downward shift of the materials of instruction, the changing organization of the college curriculum, the vocational bearing of the major, the occupational destination of college graduates, and the accommodations which are in the nature of concessions to the demand for earlier professionalization, not to mention a number of others fully as significant.

Abating the college entrance controversy.—Finally the two-year upward extension of the period of secondary education which the acceptance of the junior college plan implies, bringing with it the completion of all one's general education before his advance to the higher institution, should go far toward removing from the region of controversy the problem of college preparation. Probably nothing can ever put an end fully to the disagreement on this question between those representing the lower and the higher schools. Some abatement is, nevertheless, much to be desired. It will hardly come while the two institutions concerned overlap on each other's functions as much as do the high schools on the one hand and the colleges and universities on the other at the present time. As long as both bear the responsibilities of providing general education, the authorities representing each will feel that they are in a position to know and to determine wisely of what that general training shall be constituted, and herein lies perennial conflict.

Given an organization of education which acknowledges that professional or academic specialization is to be begun at the opening of the junior year, we change the question of college preparation from that of what is necessary for a continuation of general education to what is essential foundation for a course of training in a specialty. *The requirements in the way of preliminary training for professional or other special curricula are much more unequivocally definable than those for a mere extension of general training to higher levels.* The same may be said of the mental capacities and other personal equipment desirable. Moreover, there will be less tendency to question the judgments of those responsible for directing training in these specialties as to what preliminary work and personal characteristics are essential to success, and this on account of the relatively higher regard in which expert opinion is held. Although putting an end to controversy is not the highest form of function to be performed by an educational institution, such an achievement is doubly welcome when it is an accompaniment of a differentiation of purpose of institutions that is itself logical and commendable.

CHAPTER XXVII

A RESUME OF THE FORCES OF REORGANIZATION

I. The Concurrence of the Forces

Among the most outstanding characteristics of the tendencies toward reorganization which have been disclosed in the foregoing chapters of Part III is their large degree of concurrence. Practically without exception they show the same general trend, indicating that, whatever the forces, they are all of a piece. The facts presented are to be regarded as links in essentially a single chain of evidence foreshadowing inevitable and ultimate reorganization of the system of secondary and higher education, reorganization which involves the acknowledgment of the first two collegiate years as the typical termination of the period of general and secondary education for those who contemplate going on to higher levels, and the beginning of higher education proper somewhere in the vicinity of the present junior collegiate year.

II. A Summary of the Tendencies

The advancing age of the college student and its immediate accompaniments.—The first chapter of Part III made clear that between the earlier decades of the preceding century and the eighties there was a marked advance in age of the college entrant. For one older higher institution for which information was available, Harvard, the typical advance exceeded two years in amount. For instance, at about 1830 half the entering freshmen were 16 years and 3 months of age or younger, whereas this middle measure had risen to 18 years and 7 months by 1880. Figures for other older eastern colleges agree with these in that all show large proportions of freshmen in the earlier periods entering at 16½ years and under, many being admitted at 14½ and 15½ and under, and some at the tender ages of 12 and 13. In other words, large proportions of students were entering college at ages now regarded as appropriate for admission to high school.

It was to be expected that this typical advance in age would be paralleled by an increase in the requirements for admission from what is estimated to have been the equivalent of 7 to 9 present-day units in the earlier period to practically double the amount by the end of the century. This increase involved the addition, to materials solely in the fields of the classical languages, of supra-arithmetical mathematics, modern foreign language, history, and English in an amount totaling approximately two full years of work. In effect, therefore, the colleges in the later period were requiring two more years of liberal education for admission than had

been the prevalent practice in the earlier decades of the century, not to mention the enlarging content of the common school curriculum underlying the secondary school. This difference coincides significantly with the advancing age as shown.

This increase in requirements for admission took place at the same time that the materials of the college curriculum were experiencing a notable downward shift, a depression which did not stop with the freshman college year but continued into the years of the preparatory school below. Practically the only exceptions to this downward trend were Latin and Greek. Examples of high school inheritances from the college offerings are algebra, geometry, modern languages, English composition and literature, courses in history, science, etc.

Contrary to expectations, the collegiate courses did not often suffer dilution during the process of depression. In fact, a comparison of textbooks used in older college courses with modern high school and freshman and sophomore college texts shows enhancement and enrichment much more frequently than it does attenuation.

In harmony again with the advancing age of the college student was the changing organization of the college curriculum. Almost always fully prescribed in the earlier period this curriculum moved in the direction of a wider and wider range of election toward the end of the century. Out of this broadly elective program, which afforded at least opportunity for specialization, and, in an important sense, was a recognition of the maturity of the student, emerged the major system, now all but universal in our colleges, which is in essence a prescription of specialization. It applies primarily to upper college years. Although these modifications resulted in part from the accumulating content in each subject, they could never have been possible of introduction without students typically more mature than those formerly enrolled in the upper college years.

The major itself has been shown to have for the student prevailingly an occupational significance. It is selected in terms of occupational plans and in the majority of instances, turns out to be of occupational use. Because of the level on which this specialization takes place, it may, therefore, rather generally be looked upon as professional preparation.

A study of the occupational destinations of graduates of colleges of liberal arts indicates emphatically the need for professional preparation during later college years. Except in so far as this is provided through majors of specialization, the graduates enter occupations without anything like adequate training for them. If anything, the problem of training women for subsequent employments is more acute than for men on account of the need of anticipating for the former entrance in successive periods upon two professions, the first one temporary, the second permanent. In view of the magnitude of the task, it seems unwise to delay

beyond the end of the second college year the beginning of occupational training for most of the members of this sex who will not continue their education beyond college graduation.

Other concomitant elements of the trend toward reorganization.— There are a number of additional evidences of the trend toward reorganization of secondary and higher education in harmony with those already resummarized. Among them is the marked tendency of the separate college in several ways to accommodate itself to the desire of the student for an abbreviated period of liberal education. Almost three fourths of two hundred randomly selected college catalogues upon examination reveal modifications of this nature. Illustrative types are (1) affiliation with universities to give combination arts-professional curricula, with the first three years in attendance at the college, (2) arrangement to give the Bachelor's degree for two or three years in the college and (a) the fourth year in a technical or professional school elsewhere or (b) the completion of a technical or professional curriculum elsewhere, (3) preprofessional curricula two or three years in length without university affiliation, (4) four-year curricula aiming at complete training for certain professions, etc. The accommodations may be said to group into two main types, first, the provision of shortened preprofessional curricula and, second, the introduction of professional materials into the offering available to liberal arts students.

Related modifications are, of course, to be found also in our universities. A type of especial significance here is the provision, more often in the liberal arts unit only than in the university as a whole, of a line of cleavage between the second and third years. Six western and mid-western institutions now follow this practice, designating the lower pair of years as the "junior college," "junior division," or "lower division," and the upper years by a corresponding name. These lower units take on the characteristics of the period of general education by insisting that the student make contact with each of several large groups into which the fields of learning are divided and sometimes in other ways. In these institutions, as in the separate colleges, the student is required to decide upon the specialty to be pursued in senior college years by the end of his sophomore or the beginning of his junior year.

An influence for reorganization is to be found in the extent of elimination from colleges and universities. Especially is this true of separate colleges of the Middle West where hardly a half of the student body is carried into the junior year. Universities in this territory, on the other hand, seem to retain students through longer portions of the four-year period. Moreover, transfers of students from separate colleges are not so much to other colleges as to universities and other institutions of the polytechnic type

where training for professions may be had. Both the large extent of elimination from college before completion of the course and the extent of transfer as described are evidences of the relevancy of a shortened period of unapplied education.

The whole trend of enrolment in higher institutions is a series of finger posts on the road to reorganization. Although almost all sorts of higher schools have shown rapid gains as compared with the population since the later eighties, the growth of those of university and polytechnic type has been most remarkable. The groups of types numerically most significant, viz., state universities, other public institutions, private universities, and men's and coeducational colleges, are *now* gaining in total enrolment at rates roughly equivalent to each other. However, this state of equivalence of rates of growth was not reached until institutions of the university and polytechnic type had attained the position of numerical dominance that must cause changes within them to affect profoundly the trend of internal organization in other types. Another important tendency is to be found in the fact that men's and coeducational colleges have slowly but unmistakably been losing ground with respect to the proportions of their students enrolled in the last two years, while institutions of the university and polytechnic type have held their own or gained. At the same time a declining proportion of students, especially of men, are to be found in the last two years of liberal arts units in universities. In view of the need for occupational training for women, as already pointed out, and its imminence, if we may judge from present tendencies, it will not be long before the rapid decline for men in liberal arts units will be followed by a similar one for women.

A canvass and comparison of the aims and functions of the high school, the college, and the university, as these have in recent years been put forward by leaders in each field, also argues for reorganization of the sort implicit here. Leaders in the secondary field are interestingly near unanimity as to the major objectives of this part of the school system. Those expressing themselves concerning the university, while not as near agreement as are the leaders in the high school field, also manifest some tendency to concurrence of judgment. Of the three groups those least in agreement are the friends of the college. Most of the aims on which they approach concurrence, moreover, are those they hold in common with the friends of the secondary school. The comparison leads to the belief that junior college reorganization would make for a pronounced clarification of college aims and functions and help to bring order out of the current chaos and interference of function in higher education. Extending the acknowledged period of secondary education to include the junior college years would at once give to these the objectives of the unit below, which would rise to become

operative on the new level. At the same time the purposes held to be appropriate for the period of university education would naturally apply to the last two college years, the proper point for the beginning of specialization for one's professional destination and for the type of training appropriate for the typical age at which the student has arrived by the time he is a college junior.

The European parallel.—Beyond all this, junior college reorganization of secondary and higher education has the support of procedure in France and Germany, in that it has been found practicable there to terminate the period of general education at a point near but slightly lower than the age level reached by our college sophomores, and that after passing this point the student applies himself to specialization in the university. It may be seriously questioned whether we, who aspire to a larger approach to universal secondary and higher education, should endeavor to set the typical upper limit of unspecialized education at a goal even two years beyond the middle of our present college course, especially since the period of general education for those who go on, if it terminates at the end of the sophomore year, is even now somewhat longer than that of the less democratic European systems. It is significant that the unmistakable trend with us as shown in the foregoing chapters, is toward a period of general education of about the same length as that in Europe, rather than toward the longer one where the student is expected to complete a four-year period of unapplied collegiate education before entering upon training for his specialty.

III. Concluding Comment

Some of our higher institutions, among them both colleges and universities, on account of the grip of tradition and a selected persisting clientele, will doubtless be able to withstand for a long period the forces of reorganization to which attention has been directed in the foregoing chapters of Part III. It is not unlikely, moreover, that there may be a place in the American system for a small proportion of institutions of the type that assumes the longer period of unapplied training before entering upon the work of the professional school. In the face of the apparently inevitable tendencies of reorganization shown, however, they must come to be regarded as atypical, the prevailing type conforming to the trend of reorganization as disclosed. The consummation of this type, bringing with it the upward extension of the secondary school by the inclusion of junior college years, will go far toward justifying those claims of the friends of the new unit who insist that it will place in the secondary school all work appropriate to it, will foster the evolution of the public school system, will relieve the university, and make possible real university functioning (see Purposes 10, 11, 15, and 16 in the table and figure of Chapter II). As pointed out in the concluding paragraphs of the chapter immediately preceding, it will at the

same time abate in considerable measure the present-day college entrance controversy, which is the more acute because at present both secondary and higher institutions presume to give general training. For the current confusion will be substituted the clarifying influence of more unequivocally definable preparatory requirements of professional and other specializations.

The future of the university and of other higher institutions of polytechnic type in this impending reorganization is much more clearly discernible than is that of its sister institutions, the separate four-year college and the normal school or teachers' college. It is doubtless too early to essay prophecy concerning them that will approach realization in any significant degree, but at least some conjecture can be ventured. As admitted, a small proportion of the separate colleges, especially those with a ballast of endowment and a host of well-to-do and tradition-loving alumni, may be able to withstand the inevitable trend and remain institutions affording unspecialized training throughout a four-year period. Most of them, however, must make further accommodations to the trend, serving their generation in the way in which it insists upon being served. For the weaker units this will be as junior colleges which will draw their students from secondary schools in communities too small to warrant offering the work on the junior college level. In time, however, these junior colleges must go the way of the private academy in territory where the public high schools have seen a vigorous development. The remainder, for the most part in a better state of development than those just referred to, can serve in the dual capacity of (1) junior colleges and (2) senior colleges in which certain types of liberalized occupationalization and specialization are featured. Few such institutions will be able to afford the variety of opportunities for specialization of universities, but they can devote their energies and resources to one or a few, e.g., teaching, commerce, home economics, etc. In the remote future the junior college division for the reason given will atrophy and these colleges will then devote themselves exclusively to the senior college task.

If the future form and function of the separate college is problematic, that of the normal school or teachers' college is even more so. Perhaps, until standards of teacher preparation rise to appropriate heights, the normal school, like the private junior college as just predicted, will recruit most of its students from communities too small to warrant offering junior college work and from among those who desire this type of semiprofessional training. As these standards are raised it is conceivable that the teachers' college with four- or five-year curricula will come to articulate with the public junior college in such a way as to encourage the prospective student to attend there for two years beyond the present high school level and to transfer to the teacher-training institution at the opening of his third college year. It seems reasonable to expect that the general establishment of junior

colleges will, by making the first two years of training on the collegiate level more easily accessible, hasten the elevation of standards of teacher preparation to the strictly professional level.

Although one may well question the validity of this prophecy of the future of the two types of institution last considered, one thing is certain, that the advent of reorganization of secondary school and university along lines involving the incorporation of the junior college plan will be reflected in them, for the reason that they must adapt themselves to the dominant contemporaneous organization of the educational system.

PART IV
OVERLAPPING IN HIGH SCHOOL AND COLLEGE

CHAPTER XXVIII

THE GENERAL SITUATION

I. Introductory

At least two conceptions of special purposes of the junior college presented in Chapter II urge some canvass of the extent of overlapping of work in high school and college. These are Numbers 10 and 13 of Group II (those affecting the organization of the school system) which anticipate that the general establishment of the junior college will place in the secondary school all work appropriate to it and will assist in economizing time and expense by avoiding duplication. It may be seen from the table and figure in the chapter referred to that beliefs of these two types are entertained by no inconsiderable proportion of those whose statements were included in the analysis.

Something of the better type of thinking which characterizes the belief that the college is doing much work of secondary school grade is illustrated in the following quotation, although the excerpt itself is drawn from a paper not used in the analysis reported in Chapter II and one without expressed intent of presenting any part of a case for the junior college movement:

> The wealth of subject-matter offered in a high-school curriculum today often hopelessly outruns any possibility of mastery by a given pupil within a four-year period and much therefore remains untouched which the student may possibly wish to attack at a later point in his career. The college has been willing in increasing degree to satisfy this demand and as a result we find a wide range of identical subjects taught in school and college. The mere fact that the two varieties of institution offer the same work is not itself conclusive evidence of waste, but a careful study of the situation leads one to question whether the present practice is really defensible in all its aspects.
>
> * * * * * * *
>
> . . . . . we may well remember that our colleges pursue two lines in their practice with regard to the school work which they duplicate. In the one case they do the seemingly obvious thing and after a student has covered certain ground in school he is permitted to proceed in college to the next more advanced stage of the same subject. Work in the modern languages may illustrate this case. But in the second instance, where the colleges offer work which is nominally identical with that done in the schools, and entrance credit is given for the same, the student, when once he is safely inside the college walls, finds himself set to doing right over again much which he has already done in school. This procedure is frequently justified on the ground that the work is carried on in college from a more mature and advanced point of view. Certain courses in science both physical and biological may illustrate this case . . . .[1]

The only emendation one is moved to make to the description of duplication given is that in many instances also strictly secondary school subjects

[1] J. R. Angell, The Duplication of School Work by the College. *School Review* 21: 1-10. January, 1913.

are *begun* in the college. Cases in point are beginning courses in modern foreign language.

Another quotation stressing more especially the second expectation of avoiding waste through reorganization is made from an address by Superintendent Cammack:

> Economy of time has been a watchword in this association for many years. . . . When the same careful scrutiny and effort at elimination is given to the last two years of the high school and the first two years of the college that is now being given to the last two years of the elementary school and the first two years of the high school, with a saving of a year's time, a like economy of time may be expected. There is much that is virtual repetition in the two schools. . . .[2]

The issues here concerned are of such a magnitude as to prompt the inclusion in this investigation of an extensive inquiry into the degree of overlapping in high school and college work from both the standpoints (1) of the duplication of identical or similar curricular materials irrespective of repetition by any individual student and (2) of duplication which is in the nature of such repetition. The approach in the current chapter is by means of a canvass from these two standpoints of the general curricular situation in high schools and colleges, while in subsequent chapters of Part IV, it will be by means of an examination of several courses or subjects of study used to illustrate most of the main groups to be found in college offerings. More specifically the present chapter will report (a) a study of college offerings in which these have been classified as secondary and collegiate; (b) a study on the same basis of work actually taken by students in the first two college years; (c) an estimate of the proportion of the work taken as shown in (b) which constitutes repetition of that taken in high school by the same students; and (d) brief illustration of the conscious attempts of the colleges to avoid repetition.

II. Overlapping in High School and College Offerings

The Procedure

The colleges included.—The method followed in the first portion of this study of overlapping was to classify as (1) secondary, (2) partly secondary, and (3) collegiate those portions of the total offering in colleges open to freshmen and sophomores. The colleges resorted to were most of those whose catalogues had been utilized in the study reported in Chapter III presenting the total offering to underclassmen. In that study there were represented 114 institutions of the college type located in all sections of the country. There was a practically full count of approved institutions of this type for New England and the Western and Pacific Coast states, with a random selection from the larger number of colleges of the Middle

[2] I. I. Cammack, The Legitimate Range of Activity of the Junior College in a Public School System. *N. E. A. Proceedings*, 1917, pp. 724-29.

Atlantic, the Southern, and the North Central sections. A total of eighty-six of these colleges is represented in the study reported here, including for New England and the West all those represented in the earlier study, i.e., sixteen and ten, respectively, and twenty randomly selected for each of the three remaining sections.

Major features of the procedure in classification.—As the courses open to students during their first two years of attendance had already been noted in the earlier study, there remained the task of classifying these on the three levels designated above and making the necessary computations of credit totals and percentages found for each level. This was no simple task, as it involved the careful reading of each course description concerned in a wide variety of fields in all of the eighty-six college catalogues. It should also be stated at the outset that there are not available anything like absolute criteria to be used in a study of this sort which will make it possible to assume that the results reported are more than approximations to the actual situation. On the other hand, it is believed that, with minor exceptions, the attitude maintained throughout may be regarded as conservative and that other investigators in the field would have classified larger proportions of the offerings on the secondary and partly secondary levels. Subsequent chapters will provide additional corroboration for the decisions reported in this section.

Classification of courses.—Because much of the significance of this study depends upon the basis of classification made, these will be set forth in some detail.

(1) It must be made clear in the first place that the classification of a course as *secondary* does not assume that the course is identical in *level* with a high school course, but it does assume that there is a very large measure of identity in *content* of courses frequently listed in high school offerings. In order to decide with something like assurance that such courses are or are not often found in high schools the person tabulating had before him a table of the frequencies of appearance of subjects of study and courses in approximately 250 high schools randomly selected and distributed over the entire country. In order to economize space and also because there can be little actual need for it in understanding the materials presented, this tabular frequency is not reproduced here.

(2) The bases of classifying courses as *partly secondary* are more complex and, on this account, are generously illustrated:

a. Courses which are sometimes, but not frequently, offered in high schools, as the short story, intermediate courses in the modern languages, (i.e., beyond the second year course in high school), etc.

b. Courses to which students presenting varying high school preparation in the particular field are sometimes admitted on the same level, as general biology, home economics, etc.

c. Courses in which there are many materials common to high school courses, but presumably less than for those classified as secondary. Illustrations are English poetry, inorganic chemistry for those with a high school unit, and elementary accounting.

d. Introductory courses given in high school most commonly as semester courses, but more frequently in college as year courses, e.g., principles of economics, American government and politics.

e. Courses in which the difference in level between high school and college is rather wide, owing to the fact that the high school course is usually given in the earlier years, e.g., physiography, botany.

f. Courses which are introductory college courses but which are usually administered with a prerequisite which puts them on a different level, as general physics.

(3) All other courses found were classified as strictly *collegiate*.

As it is impracticable to make here a complete tabular presentation of the approximately 1200 different courses found during the canvass with a separate list for each of the subjects represented, a further brief description of procedure in classification followed in each subject or subject group is provided at this point as a running commentary in the order in which these subjects appear in Table CXXI, which shows the numbers of semester hours and percentages of the total amount of work open to students of junior college classification on each of the three levels, as well as the percentages on the first and second levels combined. After the details of method have been made clear, the major findings will be briefly indicated.

Procedure in each subject or subject group.—In English the following courses have been classified as secondary: freshman composition or rhetoric, freshman composition and literature (first courses), and certain other elementary combination courses not appearing as frequently as those named. As partly secondary have been classified the short story, introduction to English literature (a study of types or without description), English poetry, English literature before the nineteenth century, English literature of the nineteenth century, etc. Under collegiate have been grouped a total of more than a hundred different titles of which the following are illustrative: advanced composition, expository writing, argumentative composition, history of the English language, lyric poetry, the development of English prose, Victorian prose, the English novel, Chaucer, Spenser, Milton, Shakespeare, Browning, Tennyson, etc. From these illustrations the courses on the third level are seen to be mostly in the nature of advanced differentiations, not the broader more comprehensive courses to be found in the lower levels. No courses in *public speaking* have been placed on the secondary and only two, general public speaking and argumentation and debate, on the partly secondary level. All others in this field have been classified as collegiate, although some might justifiably have been placed with the two named.

The division of *comparative literature* was provided to include scattering courses found mainly in departments of Greek, Latin, or English literature. Illustrative courses are Greek literature in English, great modern writers, types of great literatures, and the drama from Shakespeare to Ibsen. All in this group were classed as collegiate.

All courses in *Greek,* elementary or advanced, were classified as collegiate, on the ground that the tabulation of high school offerings referred to shows that this language has well-nigh disappeared from the public secondary school. Careful reconsideration might warrant regarding at least the first collegiate year course as on the secondary level. This would reduce by almost a half the collegiate materials in this subject. As tradition makes a distinct dividing line between high school and college *Latin,* the offerings in this subject distribute to two levels only, the secondary and the collegiate. Courses described as containing the materials standard for high school such as elementary Latin and Caesar, Cicero (orations usually found in high school courses) and Vergil's *Aeneid,* were placed in the former group; all others, in the latter.

The procedure followed in the *modern foreign languages* excepting *Italian* and *Russian,* which were tabulated as strictly collegiate, may be illustrated for *French:* courses designated as *elementary French* or those indicated in the catalogues as those in lieu of which the first two years of high school work in this language are accepted, were classed as secondary; intermediate or second year courses, as partly secondary; and all other courses as collegiate, among them such courses as conversation and composition, the French novel in the nineteenth century, nineteenth-century drama, and Hugo and the romantic school.

Courses in *mathematics* reported as higher algebra, solid geometry, and trigonometry were classed as secondary; college algebra (because of overlapping with higher algebra made apparent in a subsequent chapter) and combination of this and the preceding courses, as well as separate courses in spherical trigonometry and unified or combined courses for freshmen, were classed in the second group; all others, beginning with analytic geometry, were grouped as collegiate. Other illustrations of this group are the differential and integral calculus, advanced college algebra, algebraic theory, and advanced combined courses.

The only courses in *chemistry* classed on the first level were those in general inorganic open to students without a high school course in this field, while almost the only one classed as partly secondary is the course bearing the same name but open only to those having had the high school unit. Courses regarded as collegiate are qualitative, quantitative, organic, physical, etc. No courses in *biology* were placed in the secondary group, but the following were tabulated as partly secondary: general biology, elementary or general botany (first course), elementary or general zoology (first

course), physiology and hygiene, etc. Among the host of differentiations—approximately a hundred—grouped as collegiate are fungi, forest botany, embryology, bacteriology, mammalian anatomy, etc. As some colleges offer courses in "elementary" *physics* (open without prerequisites), these were classed as secondary; the courses in general physics administered with prerequisites were tabulated as partly secondary; all other courses, as collegiate. Only such courses in the department of *geology* as bore the names physiography and meteorology were counted as being partly secondary; all others, including elementary geology, were placed in the group on the highest level. Courses in *astronomy* were all regarded as collegiate.

Two courses only in the department of *history* were classified as secondary: medieval and modern European, when combined in a single course, and American. Careful reconsideration might shift these more properly to the middle level. Nevertheless, the large extent of identity in the high school and college courses in American history shown in Chapter XXXIV gives no small support to the classification as just reported. The following are the most frequently recurring of the courses tabulated as partly secondary: modern Europe, medieval Europe, Greek and Roman, Ancient, Greek, Roman, and English. The courses tabulated as collegiate mount to a total of seventy-five and cover a wide variety of advanced specializations like the French Revolution, Renaissance and Reformation, modern Germany, England since 1776, the Civil War and reconstruction, and American constitutional history.

Political science, economics, and sociology contain no courses properly to be designated as clearly of high school equivalence, although each department includes some offerings that may be regarded as partly secondary. In political science the single offering so classified is the first course offered commonly bearing some such title as American government and politics. In the second of these departments courses so classified are principles of economics, introduction to economics, and economic history; in sociology, introduction to or elementary sociology and social problems. Illustrations of what were tabulated as of strictly collegiate character are: in political science—comparative governments, municipal governments, international law, American diplomacy; in economics—economic history of the United States, labor problems, transportation, and commercial organization; in sociology—immigration, the family, and social psychology.

All courses in *geography* were classed as collegiate, despite grounds for placing some in the middle class. All courses in philosophy (twenty-three different titles), psychology (fifteen), Bible and religion (sixty-eight), and education (thirty-three) were similarly grouped.

Occasional courses of the following character in *art* were classed as secondary: free-hand drawing, design, applied arts and crafts, commercial arts. Studio practice was classed as partly secondary, while all other courses, such as history of sculpture and painting, classical archeology, medieval art and

historic ornament, were placed in the college group. A wide variety of courses in *music,* like elementary harmony, appreciation, ear-training and sight singing, and rudiments of music were tabulated as secondary, while advanced harmony, counterpoint, and the individual instruction in voice and on instruments, because infrequently appearing in high schools, were regarded as collegiate.

First courses in *physical training* were designated as secondary, hygiene and related materials as partly secondary, with all other courses including military training as collegiate.

Most of the courses in *home economics,* because of the frequency of appearance of similar but perhaps not identical materials in high schools, were designated as partly secondary. Among these are cookery, foods, clothing and textiles, millinery, dressmaking, home decoration, home nursing, etc. In the group headed *engineering and industrial* courses in mechanical drawing, wood-working, and shop work were considered as on the secondary level, while a scattering of courses like mechanical drawing and machine design and elements of architectural drawing were located as partly secondary. More clearly of collegiate grade are descriptve geometry, surveying, etc. Of the very meager offerings in agriculture, general agriculture was classed as secondary, the few remaining hours of credit available being distributed to the two higher levels. Of the courses in *commerce,* bookkeeping, stenography, typewriting, and secretarial subjects were regarded as secondary; elementary accounting, business law, business English, etc., as partly secondary; other courses, some perhaps just as properly to be grouped with economics as under this head, among them insurance, investments and marketing, as collegiate. Courses in *journalism* were all placed in the highest group.

What the Canvass Discloses

During such examination of Table CXXI as has been necessary for an understanding of the procedure followed the reader has doubtless become aware of its chief significances. They will, notwithstanding, be at this point concisely reviewed. The departments in which the college offers considerable work classed as secondary, taking both amounts and percentages into account, are English, most of the foreign languages, chemistry and physics among the sciences, history, art, music, and the engineering and industrial group. Those in which it offers little or none on this level are public speaking, comparative literature, Greek, Italian, biology, geology, astronomy, the social sciences, philosophy, psychology, Bible and religion, education, and home economics. A glance down the partly secondary columns will show that several of the departments in the latter list, viz., public speaking, biology, geology, political science, economics, sociology, and home economics, are added to the number in which work of secondary or partly secondary grade is offered. In fact, of the total number of twenty-nine departments of any considerable magnitude when measured by the total number of hours of

work offered, only sixteen contain no work on secondary; ten, no work on partly secondary; and eight, no work either on the secondary or partly secondary level. It is noticeable also that the proportions of this work are in most instances very large.

TABLE CXXI

NUMBERS AND PERCENTAGES OF SEMESTER HOURS IN EACH DEPARTMENT CLASSIFIED AS (1) SECONDARY, (2) PARTLY SECONDARY (3) SECONDARY AND PARTLY SECONDARY COMBINED AND (4) COLLEGIATE

DEPARTMENT	SECONDARY		PARTLY SECONDARY		SECONDARY AND PARTLY SECONDARY		COLLEGIATE	
	Semester Hours	Per Cent	Semester Hours	Per Cent	Semester Hours	Per Cent	Semester Hours	Per Cent
English	919	42.4	131	6.1	1,050	48.5	1,112	51.5
Public Speaking	...	...	256	39.5	256	39.5	392	60.5
Comparative Literature	...	...	...	...	...	...	155	100.0
Greek	...	...	...	...	...	...	1,211	100.0
Latin	526	27.1	...	...	526	27.1	1,417	72.9
French	625	30.7	527	25.9	1,152	56.6	881	43.4
German	561	28.6	507	25.8	1,068	54.4	897	45.6
Spanish	585	37.0	461	29.2	1,046	66.2	535	33.8
Italian	...	...	...	...	...	...	216	100.0
Swedish	12	40.0	6	20.0	18	60.0	12	40.0
Mathematics	277	17.7	591	37.8	868	55.5	696	44.5
Chemistry	628	33.5	153	8.2	781	41.7	1,093	58.3
Biology	...	...	1,054	44.3	1,054	44.3	1,329	55.7
Physics	278	21.5	608	47.0	886	68.5	406	31.5
Geology	...	...	76	14.5	76	14.5	449	85.5
Astronomy	...	...	...	...	...	...	213	100.0
History	472	24.2	896	46.0	1,368	70.2	581	29.8
Political Science	...	...	172	40.2	172	40.2	256	59.8
Economics	...	...	339	64.8	339	64.8	184	35.2
Sociology	...	...	154	61.9	154	61.9	95	38.1
Geography	...	...	...	...	...	...	71	100.0
Philosophy	...	...	...	...	...	...	343	100.0
Psychology	...	...	...	...	...	...	332	100.0
Bible and Religion	...	...	...	...	...	...	898	100.0
Education	...	...	...	...	...	...	300	100.0
Art	72	13.5	75	14.0	147	27.5	386	72.5
Music	300	81.2	...	...	300	81.2	70	18.8
Physical Education and Hygiene	...	...	38	52.7	38	52.7	34	47.3
Military Training	...	...	...	...	...	...	69	100.0
Home Economics	...	...	484	93.8	484	93.8	32	6.2
Engineering and Industrial	153	29.7	50	9.7	203	39.4	313	60.6
Agriculture	14	40.0	6	17.1	20	57.1	15	42.9
Commerce	28	11.7	132	55.5	160	67.2	78	32.8
Journalism	...	...	...	...	...	...	89	100.0

The general trend is made more apparent in Table CXXII which presents the amounts and percentages of work on these several levels after drawing the departments into a smaller number of homogeneous groups. The interpretation of this table is facilitated by Figure 78. At the foot of both table and figure will be found the percentages of all work (exclusive of physical education and military training) offered which has been judged to be on these three levels. *The salient facts are that a full fifth of all work offered to freshmen and sophomores in these eighty-six colleges is secondary and almost a fourth is partly secondary* as herein defined, i.e., *between two fifths and a half is secondary and partly secondary, the remainder being more strictly collegiate.* While the proportions in the several subject groups differ, *except for that designated as philosophy, psychology, etc.,* which includes none, *all contain large proportions of work below the collegiate classification.*

TABLE CXXII

NUMBERS AND PERCENTAGES OF SEMESTER HOURS IN EACH SUBJECT GROUP CLASSIFIED AS (1) SECONDARY, (2) PARTLY SECONDARY, (3) SECONDARY AND PARTLY SECONDARY COMBINED, AND (4) COLLEGIATE

GROUP	SECONDARY		PARTLY SECONDARY		SECONDARY AND PARTLY SECONDARY		COLLEGIATE	
	Semester Hours	Per Cent	Semester Hours	Per Cent	Semester Hours	Per Cent	Semester Hours	Per Cent
English and public speaking	919	31.0	387	13.0	1,306	44.0	1,659	56.0
Ancient languages	526	16.6	...	...	526	16.6	2,628	83.4
Modern languages	1,783	30.6	1,501	25.7	3,284	56.3	2,559	43.7
All foreign languages	2,309	25.7	1,501	16.7	3,810	42.4	5,187	57.6
Mathematics	277	17.7	591	37.8	868	55.5	696	44.5
Science	906	14.4	1,891	30.1	2,797	44.5	3,490	55.5
Social subjects	472	14.6	1,561	48.5	2,033	63.1	1,187	36.9
Philosophy, psychology, etc.	...	...	...	...	...	...	1,873	100.0
Esthetic subjects	372	41.2	75	8.3	447	49.5	456	50.5
Occupational subjects	195	13.9	672	47.9	867	61.8	537	38.2
ALL SUBJECTS	5,450	20.0	6,678	24.5	12,128	44.6	15,085	55.4

III. OVERLAPPING IN WORK TAKEN BY TWO HUNDRED COLLEGE STUDENTS

Deviation from the procedure in the foregoing study.—Merely tabulating the courses *offered* to underclassmen, as was done in the foregoing study, although it brings significant results, cannot be regarded as furnishing a full description of the extent to which work of the junior college years is of secondary or partly secondary grade. A more complete account is provided by a study of the sort now to be reported, which shows the work actually taken by a group of students during their first two years in college. The

students in this instance were two hundred men and women who entered the College of Science, Literature, and the Arts of the University of Minnesota in the fall of 1920 and continued their residence during the two succeeding academic years ending in June, 1922. These students constitute an unselected group, being the first two hundred in alphabetical arrangement.

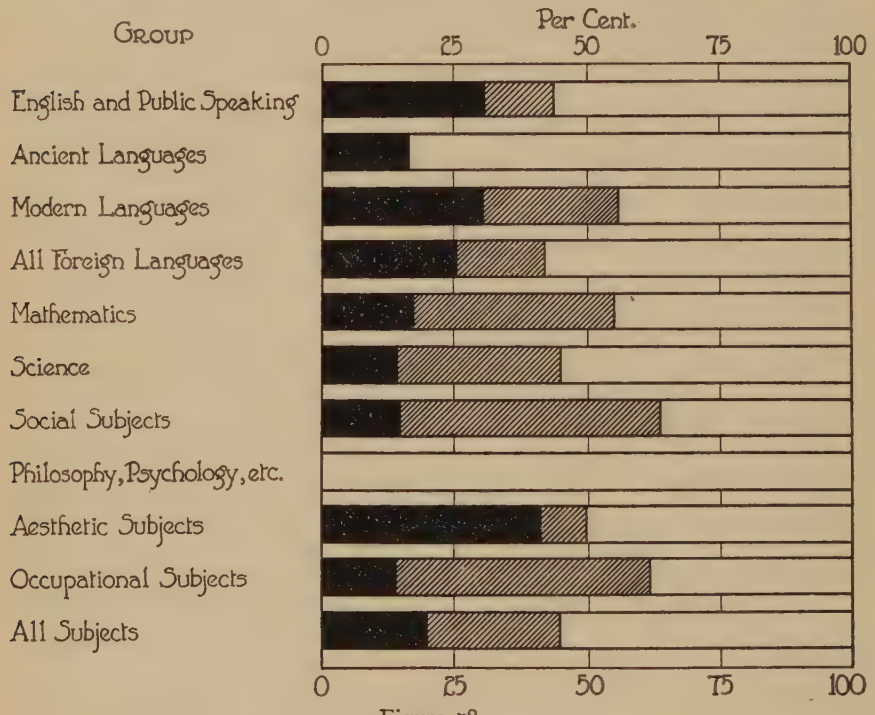

Figure 78

Percentages of work offered in the first two college years of secondary, partly secondary, and collegiate grades (black, secondary; shaded, partly secondary; in outline, collegiate)

The findings.—The table (CXXIII) presenting the results is also identical in form with Table CXXII, except that a column of total credits has been included and that the numbers of credits refer to quarter and not semester hours. Here again large proportions of the work are seen to be of secondary and of partly secondary classifications. In fact, as is shown in Table CXXIV and Figure 79, which essay comparisons of the proportions resulting from the two methods of study, *the percentages of the lower classes of work actually taken are far in excess of those offered.* In five groups of subjects—i.e., all except science, social subjects, and in the philosophical, esthetic, and occupational groups—there is a larger proportion of secondary materials; in five groups there is a larger proportion of partly secondary materials; and in all but three groups there is a larger proportion of both secondary and partly secondary materials. In most instances the differences are marked. In harmony with this are the percentages for all

subjects shown at the foot of Table CXXIV and Figure 79, which indicate an increase when the second method is used of almost ten per cent in the secondary and of about twenty-five per cent in the partly secondary portions.

TABLE CXXIII

AMOUNTS AND PERCENTAGES OF WORK TAKEN DURING THEIR FIRST TWO YEARS BY TWO HUNDRED STUDENTS IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS OF THE UNIVERSITY OF MINNESOTA

SUBJECT GROUP	TOTAL CREDIT HOURS	SECONDARY		PARTLY SECONDARY		SECONDARY AND PARTLY SECONDARY		COLLEGIATE	
		Hours	Per Cent	Hours	Per Cent	Hours	Per Cent	Hours	Per Cent
English	4,086	2,991	73.2	375	9.2	3,366	82.4	720	17.6
Ancient languages	268	135	50.4	...	...	135	50.4	133	49.6
Modern languages	3,465	1,360	39.2	1,354	39.1	2,714	78.3	751	21.7
All foreign languages	3,733	1,495	40.0	1,354	36.2	2,849	76.3	884	23.7
Mathematics	655	425	64.9	95	14.5	520	79.4	135	20.6
Science	2,289	41	1.8	1,639	71.6	1,680	73.4	609	26.6
Social subjects	5,046	165	3.3	3,574	70.8	3,639	74.1	1,307	25.9
Philosophical subjects	1,264	...	...	...	...	...	...	1,264	100.0
Esthetic subjects	352½	96	27.2	...	...	96	27.2	256½	72.8
Occupational subjects	70	6	8.6	37	52.9	43	61.4	27	38.6
ALL	17,495½	5,219	29.8	7,074	40.4	12,293	70.2	5,202½	29.8

TABLE CXXIV

COMPARISON OF THE PERCENTAGES OF WORK OFFERED IN EIGHTY-SIX COLLEGES AND WORK TAKEN DURING FIRST TWO YEARS BY TWO HUNDRED STUDENTS IN COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS OF THE UNIVERSITY OF MINNESOTA WHICH IS SECONDARY, PARTLY SECONDARY, AND COLLEGIATE IN CHARACTER

SUBJECT GROUP	1. SECONDARY WORK		2. PARTLY SECONDARY WORK		3. SUM OF 1 AND 2		4. COLLEGIATE WORK	
	Offerings	Taken	Offerings	Taken	Offerings	Taken	Offerings	Taken
English	31.0	73.2	13.0	9.2	44.0	82.4	56.0	17.6
Ancient languages	16.6	50.4	...	...	16.6	50.4	83.4	49.6
Modern languages	30.6	39.2	25.7	39.1	56.3	78.3	43.7	21.7
All foreign languages	25.7	40.0	16.7	36.2	42.4	76.3	57.6	23.7
Mathematics	17.7	64.2	37.8	35.8	55.5	100.0	44.5	...
Science	14.4	...	30.1	72.9	44.5	72.9	55.5	27.1
Social subjects	14.6	3.3	48.5	70.8	63.1	74.1	36.9	25.9
Philosophical subjects	...	...	...	...	...	...	100.0	100.0
Esthetic subjects	41.2	27.2	8.3	...	49.5	27.2	50.5	72.8
Occupational subjects	13.9	8.6	47.9	52.9	61.8	61.4	38.2	38.6
ALL	20.0	29.6	24.5	41.3	44.6	70.9	55.4	29.1

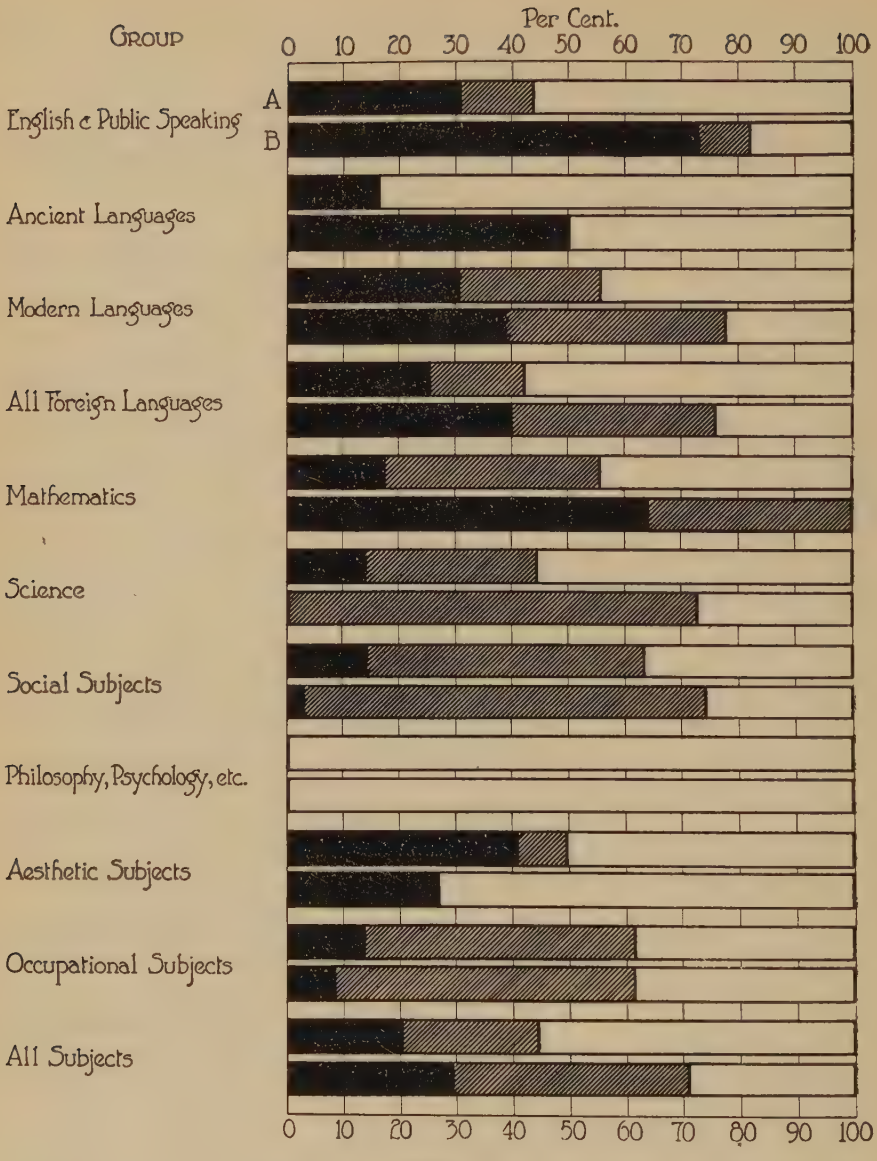

Figure 79

Comparison of percentages of (A) work offered in the first two college years and (B) work actually taken by 200 college students which are secondary, partly secondary, and collegiate (black, secondary; shaded, partly secondary; in outline, collegiate)

IV. Overlapping in the Nature of Repetition

Overlapping which constitutes repetition for the individual student.—Up to this point in the materials on overlapping of high school and college courses attention has been centered on the first type of duplication referred to in the quotation from President Angell's paper, that which concerns the appearance in the collegiate offerings of materials identical or partially identical with those available in the high school below. One aspect of the general situation still requires examination, that to which he refers as "the second instance," where the student is required, after having been granted entrance credit for certain subjects, to repeat the materials represented in those subjects. Interest here focuses upon work taken in both high school and college by the same student or group of students. To ascertain the extent of such overlapping as is in the nature of actual repetition, the work taken in high school and in college (first two years) by the two hundred students the content of whose collegiate curricula was studied for the section immediately preceding was compared. The results of the comparison are presented in Table CXXV.

TABLE CXXV

Total Numbers of Units and Percentages of Their High School Work Estimated To Be Duplicated during the First Two Years by Two Hundred Students in the College of Science, Literature, and the Arts of the University of Minnesota

Subject Group	Total Number of Units Represented	Number of Units Duplicated	Per Cent of Units Duplicated
English	819 1/3	298 1/8	36.4
Ancient languages	333 1/2	2	0.6
Modern languages	331 1/2	39 2/3	12.0
All foreign languages	665	41 2/3	6.3
Mathematics	473	4 1/6	0.9
Science	366 5/6	34	9.3
Social subjects	507	102 1/6	20.1
Philosophical subjects	6 1/2	1/2	7.7
Esthetic subjects	85	3 2/3	4.3
Occupational subjects	341	1	0.3
All	3,263 2/3	485 7/24	14.9

As may be judged from the total number of units reported, very few students of this group entered with less than four units of high school work in English. Freshman English as administered in the College of Science, Literature, and the Arts of the University of Minnesota is composed of both rhetoric and literature, the latter not adhering closely to the content of the

typical first course in this field in colleges, a course which is usually designated as the "history of English literature" or the "survey course" in English literature. Since we are here concerned with the typical or general situation rather than that in the University of Minnesota, overlapping will be estimated on the former basis, although the extent of repetition thus indicated is probably considerably in excess of the actual amount in the institution concerned. The writer feels that, on the basis of the materials of the two chapters immediately following, he is easily within the truth when he assumes that the typical two first college courses, freshman composition and history of English literature, repeat for the students who have had four units of high school English at least one and a half units per student, and that, for the small proportion of students offering three units for admission, three fourths of this amount. This turns out, as seen in the last column of Table CXXV, to be an estimated repetition of 36.4 per cent.

On account of the standardization of courses in Latin, the predominant *ancient language* studied, there is little repetition in this field although there is doubtless more than the fractional percentage indicated. On the assumption that two years of a *modern language* in the high school are the equivalent of as many quarters in the same language in college and that subsequent college work taken by the student is a continuation—not always a tenable assumption—there is also little repetition in this field. Such as has been computed has its origin in demotion of the student to more elementary work without loss of entrance credit where an instructor decides that preliminary work in high school has not been well done, and this may at least in part not mean real repetition. The facts of the chapter on overlapping in French do not lead to a conclusion of a large extent of repetition for the individual student, except where he has taken his elementary French in some high school which exceeds the typical amount of ground covered. The chapter referred to discovers high school courses of this sort.

The amounts and percentages shown for *mathematics* are likewise based on the assumption that the courses taken in college are distinctly continuous with those pursued in high school by the same students, for instance, that college algebra begins where higher algebra leaves off. This assumption is rendered untenable in Chapter XXXII, which shows a large amount of overlapping of the former course upon the latter and justifies an estimated overlapping much in excess of that indicated in Table CXXV.

The table indicates a total duplication for these two hundred students of slightly less than a tenth of all *science* accepted for entrance. The three sciences really influential in this result are botany, zoology (animal biology), and physics, which were pursued both in high school and college by thirteen, eleven, and fifteen students, respectively. As the University of Minnesota administers separate courses in general inorganic chemistry for

those who have and those who have not had high school chemistry, reducing the credit carried by that taken by the former group one third, repetition was assumed in the case of one student only who, having chemistry in high school, took the longer college course. The assumption here is doubtless far short of the actual extent of duplication, as may be deduced from the chapter on overlapping in chemistry (XXXIII). Owing to the relatively small percentage of colleges making recognition of high school chemistry of the sort just described as operative in the University of Minnesota—as may be seen in the next section of the current chapter—the extent of repetition for colleges generally must be much in excess of the 9.3 per cent computed.

The large extent of duplication estimated for the *social subjects* arises for the most part in the repetition primarily of materials in modern and American history, civics (political science), and economics, although there is an occasional repetition in English history. The numbers of students pursuing the courses represented both in high school and college were, respectively, 41, 17, 68, 19, and 4. The course first referred to was usually listed for a full unit of credit; the second, sometimes for a third, sometimes for a half, and sometimes also for a full unit; the remaining courses were usually one-third or one-half unit courses in the high school. The chapters in Part IV dealing with overlapping in American history and economics, although not touching all courses here concerned, lend full support to the extent of repetition assumed.

As the total amount of repetition ascertained in the three remaining groups of subjects in Table CXXV is almost negligible, no further word of comment will be made concerning them.

The amount and proportion of repetition for *all* subjects is shown in the lowest row of figures. On the basis of the assumptions as described, the latter turns out to be 14.9 per cent. However, owing to the conservative character of most of these assumptions as pointed out in explaining the table, *the actual repetition of materials can hardly be less than a full fifth of all the work taken in the high school by such a group of students. This is the equivalent of four fifths of a high school year. Even after allowance is made for some measure of review to add to the fixation of fundamental skills accomplished only by means of extended drill, what remains is a big price to pay for our attempts to divide secondary education between two separate institutions.* Much of this repetition must be owing solely to the failure of those giving instruction on the higher levels to know what is done in the secondary school.

V. Current Efforts To Avoid Repetition

The foregoing section affords ample illustration of the variation in the extent to which there is conscious effort to avoid repetition. The situation

in chemistry supplies an instance of an effort to recognize repetition by shortening the analogous course in college for those who have had it in high school. The social subjects represent the opposite extreme where no concessions are made to those who have had similar courses in the lower schools.

This brief section is devoted to a partial examination of the extent to which a large number of higher institutions are aware of the dangers of waste through repetition and have made arrangements to obviate it. Although partial, it is sufficiently complete to warrant the conclusions which are drawn.

The catalogues of the eighty-six colleges used in the first section of this chapter were examined to note any evidences of devices for avoiding the waste of repetition in English. Only one such item of evidence appeared during the examination: one college makes it possible for freshmen to be excused from the course in freshman rhetoric by passing an examination at the beginning of the year.

The standardization of course sequences in older subjects like the ancient languages and mathematics seems to satisfy the colleges on the score of overlapping, as no special adjustments appear in these fields, despite what is almost a certainty of repetition somewhat similar to that in higher and college algebra as shown in a subsequent chapter.

In approximately ninety per cent of the colleges two units of high school modern language are counted the equivalent of a year of college work, the student with the former amount to his credit being admitted to second year college courses in the same language.

Chemistry is the only one of the college sciences in which there is any extent of effort to recognize the fact of overlapping. In all others there is seldom if ever administrative acknowledgment, other than giving entrance credit, that the student has had a high school course in an identical line. Even in chemistry only twenty-four, or less than thirty per cent, of the total of eighty-six colleges make such acknowledgment. Of these twenty-four, thirteen reduce the number of semester hours (by an average of 4.4 hours) required for the completion of the college course in general inorganic chemistry. Among these are five colleges which save the student as much as one year and three a half year in entering advanced courses. The principal remaining form of recognition is simply the offering of a special course in general inorganic chemistry to students offering a high school unit in this subject, the total number of credits for the course being the same as that for the regular beginning course, and concluding by putting those students no further up the sequence in the department than those who have taken the course for those entering without high school chemistry. There were nine such institutions.

In all the social subjects students who have had no high school course in a particular field enter the same courses as those who present half or whole units of admission in the same field.

There is, thus, an *all too common disregard in the college of what the student has compassed in his period of high school training* and, moreover, *no notable tendency in the direction of proper recognition.* The situation is not likely to experience early improvement for the reason already mentioned in this chapter, that the work repeated is given in two distinct institutions, the upper of which is ignorant of and constitutionally disparages the work done in the lower.

VI. Summary and Anticipation

The statements of President Angell quoted in the opening paragraphs of the current chapter are seen to have ample justification in facts presented. There is much that is secondary in character in the offerings to students in the first two years of their college careers. Of all work *offered* in these years more than a fifth is clearly secondary and an even larger amount is partly secondary, the total proportion of work designated as both secondary and partly secondary ranging between two fifths and a half of the entire offering. All these proportions are strikingly augmented when the computations are based on the work actually *taken* by a group of students. In this instance almost a third is secondary, a generous two fifths partly secondary, and almost three fourths in both these classifications. These figures are, of course, in excess of the proportion of actual *repetition* of high school work, but this mounts to something like a fifth of the full high school curriculum, or four fifths of a high school year. Moreover, there is no notable tendency in the direction of recognition in anything like a systematic way in the college of high school work previously covered. Here are facts of vital import to the problem of the organization of secondary and higher education in this country—(1) a wide extent of overlapping in the materials of high school and collegiate instruction and (2) a large amount of actual repetition by the individual student.

The seven chapters next following present the results of intensive studies of overlapping in special fields of instruction common to high school and college: English literature, English composition, French, mathematics, chemistry, American history, and economics.

CHAPTER XXIX

OVERLAPPING IN ENGLISH LITERATURE

I. Preliminary Considerations

The courses upon which attention was focussed.—Any comprehensive study of the overlapping of high school and college English must examine both its two chief phases, literature and composition. The latter will be given separate treatment in the chapter next following, while the former will be considered here. In this chapter report will be made upon the results of a special investigation of the extent of similarity and difference of those portions of the high school offering in English devoted to the history of English literature and of the course bearing that name or one closely allied to it, e.g., "survey course in English literature," as administered in colleges. The high school material is not always presented as a separate course, but it is nevertheless a standard constituent of the work in English in the lower unit. In the college it is usually offered as a separate course and is the most common first course in English literature available to students there. Comparison is also made of (a) the English literature studied throughout the high school course in English, whether or not read in conjunction with the portions dealing with the history of English literature and (b) the literature read in connection with the college survey course.

Number and distribution of institutions represented.—The institutions appealed to for information touching their courses were randomly selected from among cities having a population of 7500 or more. As the questionnaires in this field were inevitably formidable, the proportion of usable responses was found to be so small that it was necessary to send out a second group of inquiries, some of these going to states outside those originally included. This accounts for the fact that the geographical distribution is somewhat wider than for English composition as shown in the following chapter.

Replies usable in various parts of the study came from twenty-eight high schools in the eight following states: Illinois, 10 schools; Iowa, 3; Michigan, 1; Minnesota, 2; Missouri, 2; Pennsylvania, 1; South Dakota, 1; and Wisconsin, 8. Replies similarly usable were returned from twenty-nine colleges and universities in the fifteen following states: Colorado, 1 college; Connecticut, 1; Illinois, 4; Indiana, 5; Iowa, 4; Kansas, 1; Massachusetts, 1; Minnesota, 1; Missouri, 1; New York, 1; Ohio, 4; Oklahoma, 1; South Dakota, 1; Virginia, 1; and Wisconsin, 2.

The predominant classification of students.—In sixteen of the twenty-eight high schools represented this survey course is taken predominantly

by seniors; in eight, by juniors; and in four, by juniors and seniors. In the group of schools last named the course is begun by students when juniors and completed while they are seniors. In colleges it is almost exclusively what may be referred to as a junior college course, being taken predominantly by freshmen and sophomores. It is, therefore, almost always taken late in high school and early in college.

Time requirements of the course.—High school courses range widely as to the number of weeks devoted to this portion of the English offering, extending in fact from nine weeks for the shortest to fifty-seven weeks for the longest, period. However, eighteen of the twenty-eight cases range between thirty-six and forty weeks, i.e., most of them extend it over a full school year. The colleges also tend to make a year course of it, twenty-six of the twenty-nine cases ranging between thirty and thirty-nine weeks in duration. Three appear to make it a half-year course.

Because the frequency of class meetings per week varies widely from course to course, a more definite description of the time element is afforded by the total number of clock hours of time devoted to the course. The distributions of school and college courses measured in this way is provided in Table CXXVI. This shows that the high schools tend to assign more time to the course than do the colleges, and that the median number of clock hours in the former exceeds that of the latter by a half. If the amount of time assigned to the work is any criterion, high schools take the course even more seriously than do the colleges.

TABLE CXXVI

NUMBERS OF CLOCK HOURS IN HIGH SCHOOL AND COLLEGE COURSES IN THE HISTORY (OR SURVEY) OF ENGLISH LITERATURE

NUMBER OF CLOCK HOURS	HIGH SCHOOLS	COLLEGES
20- 39	2	2
40- 59	2	1
60- 79	2	9
80- 99	2	13
100-119	3	3
120-139	7	..
140-159	7	1
MEDIAN NUMBER OF CLOCK HOURS ..	128.0	81.5

The scope of the analysis.—The major aspects of the study to be reported are (a) an analysis and comparison of texts in the history of English literature used in the courses represented, (b) an inquiry into the extent of overlapping in the classics assigned to be read, and (c) a comparison of quantitative requirements. Some attention will be given also

(d) to similarities of method and (e) to opinions of instructors as to differences that do and should obtain between the high school and college courses. The only portion of the courses not treated is that included by the "outside readings" rather commonly prescribed in high schools. If included, they would add somewhat more to the extent of overlapping found.

II. A Comparison of the Textbooks Used

The two chief constituents of the courses.—Usually there are two main reading constituents of the courses which concern us in this chapter, reading *about* English literature, almost exclusively done in textbooks presenting its history, and reading *of* the literature itself. The proportions of these two major constituents vary in each group of schools and are not the same in the two groups. The median percentage which textual materials proper constitute of high school courses is 29.3, while for college courses it is 17.2. The range in high schools is from none to 53.4 per cent, while the range in colleges is from none to 36.9. These figures show a tendency to make these materials a less important consideration in colleges than in high schools, but at most the practices are not widely divergent in the two units. The median proportions of literature in the courses are thus seen to be 70.7 per cent for high schools and 82.8 per cent for colleges.

The texts used.—The textbooks reported by the schools supplying data on this point are listed with their frequency of use in Tables CXXVII and CXXVIII, the former giving the distribution for high school and the latter for college courses. The data for high schools show two predominant texts, Halleck and Long; the data for colleges show only one text, Moody and Lovett, in frequent use, the remaining texts finding only scattered use among the schools represented. An important item of contrast between the courses on the two levels is that colleges much more often than high schools dispense with the text. Nevertheless, the more common practice even in colleges is to use a text.

Omissions.—Where the textbook is used, there is little tendency to omit significant portions of the material contained. Of the twenty-four high schools reporting texts, all but two use the book *in toto*. Of the seventeen colleges reporting texts, all but five require the reading of the entire volume. In all cases of omissions these are of tabular matter or minor authors, and are not extensive in any event. This fact ensures in some measure the validity of the results of the analyses to follow as a basis for the comparison of high school and college courses.

Amounts of textual material required.—In order that it may be made clear that the textual materials constitute no inconsequential portion of the courses represented, it may be said that the median numbers of equated

pages[1] of this sort read for those schools reporting that texts are used, are 549.4 and 535.3, respectively, for high schools and colleges. These minimum and maximum amounts are likewise equal, being approximately 300 and 750 pages for courses on both levels.

TABLE CXXVII

FREQUENCY OF USE OF TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE REPORTED BY TWENTY-EIGHT HIGH SCHOOL INSTRUCTORS

AUTHOR	NUMBER OF TIMES REPORTED
Halleck	10
Long	7
Pace	3
Bates	2
Miller	1
Hinchman	1
Using no textbook	4
TOTAL REPORTING	28

TABLE CXXVIII

FREQUENCY OF USE OF TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE REPORTED BY TWENTY-NINE COLLEGE INSTRUCTORS

AUTHOR	NUMBER OF TIMES REPORTED
Moody and Lovett	11
Crawshaw	2
Fletcher	2
Abernathy	1
Long[a]	1
Using no textbook	12
TOTAL REPORTING	29

[a] A high school textbook.

The textbooks analyzed.—As it was out of question to include in this study an analysis of all textbooks reported, four only were selected for dissection: two high school and two college. These were volumes most frequently used, viz., Halleck and Long representing high school courses, and Moody and Lovett and Crawshaw representing the college group. Although

[1] The same method of computing pages has been used in all but one of the chapters of Part IV. In all measurements count was taken to the nearest tenth of a page and all types of pages reduced to a common base to make the *amount* of content strictly comparable. Since it was the high school text most frequently reported, Halleck was used as the base throughout this chapter.

the text last named is listed no more frequently than Fletcher (see Table CXXVIII) in the group of colleges included, it had a greater total frequency in all questionnaires returned, some of which were not usable for this study.

TABLE CXXIX

LIST OF MAJOR AND MINOR WRITERS RECEIVING A TOTAL OF FOUR OR MORE PAGES OF TREATMENT IN FOUR TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE, WITH THE NUMBERS OF PAGES OF TREATMENT RECEIVED

WRITER	PAGES	WRITER	PAGES
Shakespeare	69.8	Cowper	10.4
Milton	50.1	Austen	10.0
Chaucer	48.0	Kipling	9.9
Browning	39.8	Caedmon	9.8
Wordsworth	37.6	Stevenson	9.7
Tennyson	36.0	Steele	9.3
Carlyle	34.4	Fielding	9.0
Spenser	30.4	Meredith	8.6
Scott	29.3	Gray	8.5
Swift	28.1	Richardson	7.8
Dickens	26.7	Beaumont-Fletcher	7.7
Shelley	26.2	Blake	7.5
Byron	25.8	Hardy	7.1
Keats	24.7	Landor	6.6
Thackeray	24.5	Alfred	6.6
Pope	23.8	Swinburne	6.4
Arnold	22.9	Layamon	6.2
Eliot	22.9	Gibbon	5.8
Coleridge	22.5	Chapman	5.8
Burns	21.9	Mrs. Browning	5.7
Macaulay	20.9	Donne	5.5
Dryden	20.2	Sidney	5.5
Ruskin	20.1	Boswell	5.4
Ben Jonson	20.1	Herrick	5.0
Samuel Johnson	18.2	Herbert	4.9
Bacon	18.2	Morris	4.8
Bunyan	17.4	Yeats	4.7
De Quincey	16.0	Mallory	4.5
Addison	14.8	Gower	4.3
Goldsmith	14.7	Thompson	4.3
Marlowe	13.6	Rossetti	4.2
Defoe	13.3	Browne	4.1
Lamb	10.8	Sterne	4.0

The major and minor writers.—One important basis of comparison is the proportionate recognition in texts on the two levels of major and minor writers. This could not be done without first deciding which were to be regarded as major and which as minor. This was done by computing the

total equated pages of recognition of each writer in all of the four texts analyzed. The results of these computations for the sixty-six authors who received four or more pages of attention are presented in Table CXXIX. They are listed in the order of extent of recognition. No data are given here for the 163 authors receiving less than four pages of attention. For the purposes of the comparison essayed it was decided arbitrarily that all writers receiving nine or more pages of attention in the four volumes would be classified as major, and all receiving less, as minor. This resulted in a division of the total of 229 authors into 40 of the former group and 189 of the latter. The investigator holds no brief for the ultimate merit of this division; in fact, his own appreciations would urge him to take exception to the distribution if the results of this tabulation were to be used in final evaluation of the writers concerned. It is not, however, without utility in the present study.

Comparative extent of treatment of major and minor writers.—The number of equated pages and percentage of total content in each of the texts devoted to major and minor authors as classified are shown in Table CXXX. It contains also the averages for each pair of texts analyzed. The percentages alone are given in Figure 80. The amounts of space devoted to major writers is larger for high school texts. The percentage, also, is larger for these than for one of the college texts, Moody and Lovett, although Crawshaw shows a larger percentage than the average of the two high school texts. Correspondingly, the amount and percentage on minor authors are larger for Moody and Lovett than for either high school text, although the difference in actual amount is not striking. In view of the predominant use of Moody and Lovett we are warranted in concluding some difference here. The difference, nevertheless, is really less notable than the degree of similarity.

TABLE CXXX

NUMBERS OF EQUATED PAGES AND PERCENTAGES OF TOTAL CONTENT DEVOTED TO MAJOR AND MINOR WRITERS IN TWO HIGH SCHOOL AND TWO COLLEGE TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE

TEXTBOOKS	MAJOR WRITERS		MINOR WRITERS	
	Pages	Per Cent	Pages	Per Cent
HIGH SCHOOL				
Halleck	270.1	72.7	101.2	27.3
Long	278.7	79.9	70.1	20.1
Average	274.4	76.2	85.7	23.8
COLLEGE				
Moody and Lovett	199.9	59.6	135.3	40.4
Crawshaw	217.0	77.5	63.0	22.5
Average	208.5	67.8	99.2	32.2

Comparison of personal biography and literary biography and works.—Table CXXXI takes this analysis a step farther and shows the apportionment of content to treatment of (a) personal biography and of (b) literary biography and works of each group of authors, major and minor, The data presented show a tendency in the high school texts to emphasize the former type of content more than do the college texts. The single exception is personal biography of minor writers in Moody and Lovett. At the same time, the total *amount* devoted to the latter type in high school texts compares favorably with that in college texts. If the numbers of pages on literary biography and works are totaled and averaged, they will be found to be, respectively, 264.5 and 271.1. This is certainly no wide divergence on this point. The averages of the percentages show the anticipated differences, as they are 73.5 and 88.1, respectively. These, their complementary percentages on personal biography, and percentages on both portions for individual volumes are shown in diagrammatic form in Figure 81. The conclusion to be drawn is that high school texts devote almost as much space to the second aspect as do college texts, but that the *proportion* turns out less because they also give more space to personal biography.

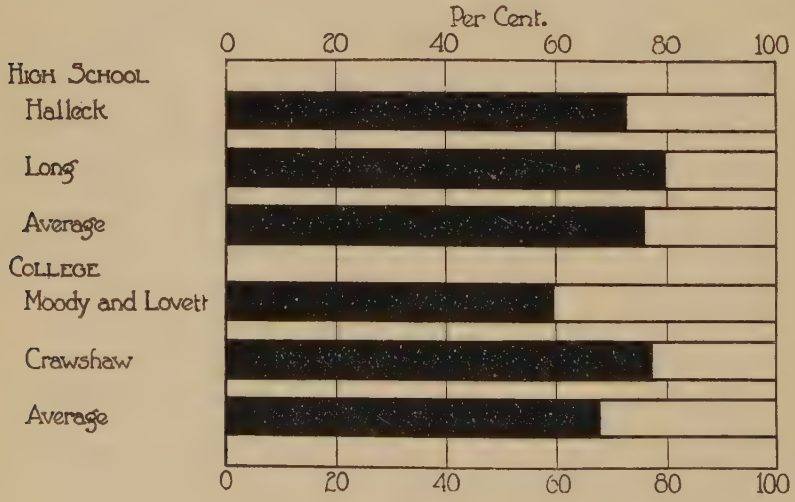

Figure 80

Percentages of high school and college textbooks in the history of English literature devoted to major and minor writers (black, major; in outline, minor)

Comparative topical analysis of high school and college texts.—In order to find any other qualitative differences likely to exist the four texts were analyzed as to the amounts and proportions of space devoted to each of six major topics, viz., environmental influences, writings, pure

biography, extracts, general considerations, and mechanical details. These chief divisions comprehended 175 subtopics to which all the content of the texts had been distributed. There were, thus, several to many subtopics for each main topic. For instance, among the thirty-seven subtopics classified as environmental influences were political history, social history, origin and background of works, etc.; among the sixty-nine subtopics under writings were critical treatment, general characteristics of literary types, etc.; among the twenty-one subtopics of general considerations were the nature and function of literature, development of language, etc.; and among mechanical details were bibliographies, illustrations, chronology, etc.

TABLE CXXXI

NUMBERS OF EQUATED PAGES AND PERCENTAGES OF TOTAL CONTENT DEVOTED TO (a) PERSONAL BIOGRAPHY AND (b) LITERARY BIOGRAPHY AND WORKS OF MAJOR AND MINOR WRITERS IN TWO HIGH SCHOOL AND TWO COLLEGE TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE

TEXTBOOK	MAJOR WRITERS				MINOR WRITERS			
	Personal Biography		Literary Biography and Works		Personal Biography		Literary Biography and Works	
	Pages	Per cent	Pages	Per cent	Pages	Per cent	Pages	Per cent
HIGH SCHOOL								
Halleck	82.5	22.2	187.6	50.5	6.2	1.7	95.0	25.6
Long	95.6	27.4	183.1	52.5	6.9	2.0	63.2	18.1
Average	89.5	24.7	185.4	51.5	6.6	1.8	79.1	22.0
COLLEGE								
Moody and Lovett	36.5	10.9	163.4	48.8	8.3	2.5	127.0	37.9
Crawshaw	26.5	9.5	190.5	68.0	1.8	0.6	61.2	21.9
Average	63.0	10.2	177.0	57.5	5.1	1.6	94.1	30.7

The results of the analysis are to be found in Table CXXXII, the average percentages here presented being reproduced in diagrammatic form in Figure 82. In *amounts* of space the high school exceed the college texts notably in biography, extracts, and mechanical details, and only slightly in environmental influences and general considerations (largely introductory materials). One of the college texts, Moody and Lovett, assigns more space to writings than does either high school text, but the other, Crawshaw, assigns approximately the same amount as do Halleck and Long. The percentages do not much modify the relationships of the amounts of space, but, because the total space in college manuals is less, the recognition of

writings in college manuals is thereby accentuated. By looking more especially at these figures showing *proportionate* emphasis there is some ground for a conclusion that the high school texts stress somewhat more the more concrete aspects, the college texts emphasizing the more abstract aspects. This judgment has some extent of corroboration in a study of content tabulated under the subtopic of critical evaluation, which appeared under the head of writings. It appeared here that high school manuals were more inclined to evaluate in general words than were college manuals, while the latter resorted more frequently to specific evaluation of specific works, to critical comparison of authors and periods, and to discussion of style. On the other hand, these types of treatment were present in texts on both high school and college levels. Even after all differences between them have been noted, one is still struck by their essential similarity.

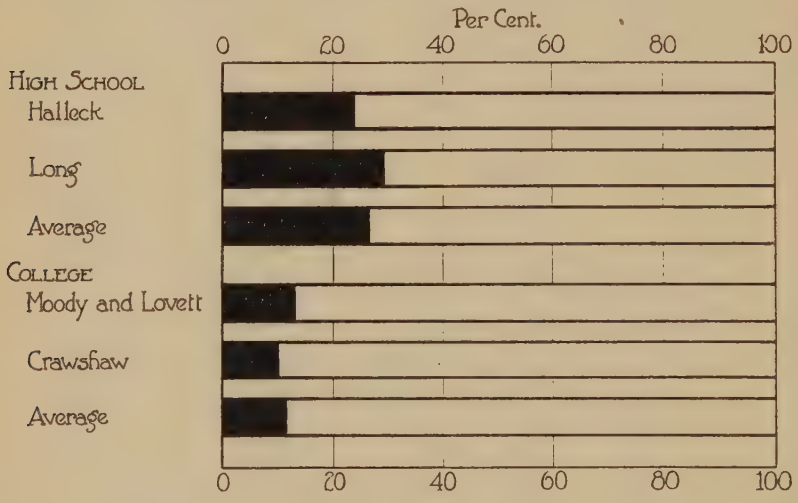

Figure 81

Percentages of high school and college textbooks in the history of English literature devoted to personal biography and to literary biography and work of writers treated (black, personal biography; in outline, literary biography and works)

Reference readings on the history of English literature.—Required reading outside the texts analyzed concerning the writers studied does not often find a place in the courses represented in this study. The practice is found in a small proportion of colleges, especially in those using no textbook, and is not much more frequent in high schools. When prescribed in high school, these references are usually in the textbooks already listed. Colleges, however, prescribe portions of more advanced works. There is no occasion for believing that the results of the analysis of texts as shown do not represent this portion of the courses in the history of English literature in which a text is in use.

TABLE CXXXII

NUMBERS OF EQUATED PAGES AND PERCENTAGES OF TOTAL CONTENT DEVOTED TO CERTAIN TOPICS IN TWO HIGH SCHOOL AND TWO COLLEGE TEXTBOOKS IN THE HISTORY OF ENGLISH LITERATURE

TEXTBOOKS	1. ENVIRONMENTAL INFLUENCES		2. WRITINGS		3. BIOGRAPHY		4. EXTRACTS		5. GENERAL CONSIDERATIONS		6. MECHANICAL DETAILS	
	Pages	Per Cent	Pages	Per Cent	Pages	Per Cent	Pages	Per Cent	Pages	Per Cent	Pages	Per Cent
HIGH SCHOOL												
Halleck	47.8	7.0	260.3	38.2	75.8	11.1	105.2	15.4	10.9	1.6	182.2	26.7
Long	75.6	11.5	251.6	38.4	133.5	20.4	76.9	11.7	11.1	1.7	106.5	16.3
Average	61.7	9.2	255.5	38.3	104.7	15.7	91.0	13.6	11.0	1.6	144.6	21.6
COLLEGE												
Moody and Lovett...	53.0	11.2	299.5	63.1	76.2	16.1	13.2	2.8	3.3	0.7	29.5	6.2
Crawshaw	48.3	10.2	251.9	53.4	47.5	10.1	55.3	11.7	1.1	0.2	67.9	14.4
Average	50.6	10.7	275.7	58.3	61.8	13.1	34.2	7.2	2.2	0.5	48.7	10.3

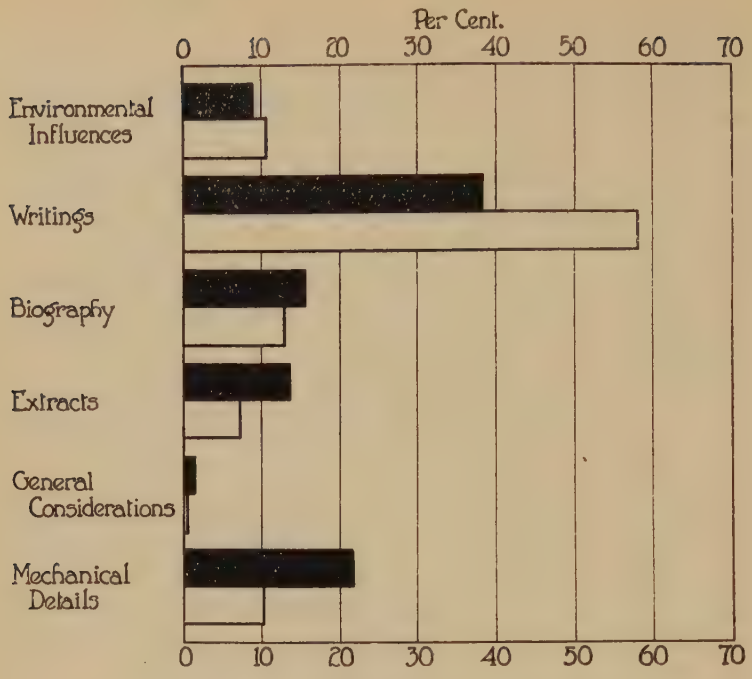

Figure 82

Average percentages of high school and college textbooks in the the history of English literature devoted to certain topics (black, high school; in outline, college)

III. Overlapping in the Classics Read in High School and College

Additional features of the procedure.—The analysis of the other chief constituent of these courses in English literature in high school and college concerns the selections read. For the lower unit this includes all the classics exclusive of those in the American field read during the entire high school course in English extending through three or four years, and this comprehends also the selections read in that portion of the full course concerned particularly with the history of English literature. For the college it includes only those selections read in the particular course which has so far been given consideration. In this section, therefore, we are comparing the readings of this sort done in the survey courses in college with all readings in English literature required in the three- or four-year high school courses in English.

It was no severe task for high school teachers to supply the names of classics read and studied in the non-survey portions of the several years of the full course. As it would have been too much to expect a busy

teacher either in high school or college to list all selections read in connection with the survey course, in instances where anthologies were used, the first step was to ask for the name and compiler of the anthology used. After the instructor had co-operated in this way, a list of all selections appearing in the anthology was sent to him with the request to check all those the reading of which was required during the progress of the course. By persistence of both the instructors and the investigator, full lists of selections read were available for twenty-four high schools and an equal number of colleges, enough to be safely indicative of the true situation.

Almost all selections read in connection with college courses were those assembled in anthologies. Because selections read in all years of the high school course were included, the median proportion in anthologies was only something over half the total literary constituent. All selections were included, whether or not they appeared in anthologies.

The method of equating pages was identical with that noted in the section presenting the analysis of textbooks, Halleck again being used as the base.

Overlapping in the lists of selections reported.—One of the measures of overlapping was drawn from the simple but extended table of frequencies with which each selection listed by all the forty-eight institutions was read in each of the two groups of schools, the high schools and the colleges. A total of 1792 different selections was reported by the forty-eight instructors. Of these (see Table CXXXIII, first column of figures), 546 only were not read in some one of the twenty-four high schools. Of the total of 1246 which were read in one or more high schools 118 were read in a half or more. Of these 118 selections, seventy-two (see second column of figures) were read also in a half or more of the colleges; twelve, in a third to a half of the colleges; twenty-three, in from 4.2 per cent to a third; and eleven only were to be found in no college list. This means that 107, or 90.2 per cent, of the selections read in a half or more of the high schools are to be found on the college lists. The second row of figures shows that, of the 106 selections found in the lists of a third to a half of the high schools, 35 are read in a half or more of the colleges; 13, in a third to a half; and 30, in from 4.2 per cent to a third. Only 28 of these selections are not found in college lists.

By totaling the first three rows in the second, third, and fourth columns of figures, one would find that 575 selections, or 46.2 per cent of all the selections found in the high school lists, were also found in the college lists. By means of an analogous computation, it can be ascertained that 575, or 51.3 per cent, of all the 1121 selections found in college lists, were also in high school lists.

TABLE CXXXIII

OVERLAPPING OF LISTS OF SELECTIONS READ IN TWENTY-FOUR HIGH SCHOOL COURSES IN ENGLISH LITERATURE AND TWENTY-FOUR COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

PROPORTION OF 24 HIGH SCHOOLS	NUMBER OF SELECTIONS	NUMBER OF SELECTIONS READ IN				PER CENT OF OVERLAPPING OF COLLEGE ON HIGH SCHOOL LISTS
		Half or More of Colleges	A Third to Half of Colleges	4.2 Per Cent to a Third of Colleges	No College	
A half or more	118	72	12	23	11	90.2
A third to a half	106	35	13	30	28	69.8
4.2 per cent to a third	1022	54	73	263	632	38.2
No high school	546	7	78	461	...	...
TOTAL SELECTIONS ...	1792	168	176	777	671	...

The selections common to a half or more of both high school and college lists.—Reference has been made to a list of seventy-two selections common to a half or more of both the twenty-four high school and twenty-four college lists. These are to be found, with authors and frequencies of appearance in Table CXXXIV. The arrangement is roughly chronological. The median frequencies for high school and college are practically equal, being, respectively, 16 and 17. All but four of the selections are poetry and all seem to be gems held in such high esteem that few instructors on either level seem to be willing to leave them out of account; consequently, the ill-considered duplication and repetition.

A weighted measure of the overlapping of the lists.—The extent of overlapping of the lists is not, however, adequately shown by a mere count of the different selections to be found in both high school and college courses. While not complete, a better method is one which takes into account the total frequency of appearance of each selection in all the high schools and colleges represented. Such a measure is afforded by Table CXXXV, which has been assembled from the same materials as were introduced into Table CXXXII, after a manner requiring brief description. The top figure in the first column of figures, 1652, was obtained by multiplying the number of selections appearing in a half or more of the lists by the median frequency of the 118 selections, which was fourteen; the second figure, 1060, resulted from multiplying the number of selections listed by a third to a half of the high schools, 106, by the median frequency, which was ten; and the third figure, 4088, is the product of the multiplication of 1022 by the median frequency, four. The total at the foot is the sum of these products. The total frequencies of the same selections in college appear in the second column of figures. These were obtained, e.g., by adding together the products of the numbers of selections in the top row of figures beginning with seventy-two by their median frequencies.

TABLE CXXXIV

AUTHORS, TITLES, AND FREQUENCY OF APPEARANCE OF SEVENTY-TWO SELECTIONS READ IN A HALF OR MORE OF TWENTY-FOUR HIGH SCHOOL COURSES IN ENGLISH LITERATURE AND TWENTY-FOUR COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

AUTHOR	SELECTION	FREQUENCY		AUTHOR	SELECTION	FREQUENCY	
		High School	College			High School	College
	Beowulf	14	19	Wordsworth—*continued*	She Was a Phantom ...	18	17
Chaucer	Prologue	19	22		I Wandered Lonely	18	17
Mallory	Le Morte D'Arthur	14	12		To a Skylark .	17	15
	Sir Patrick Spens	18	24		Ode to Duty ..	18	12
Spenser	The Faerie Queene	14	12		Composed, Westminster Bridge	13	16
Shakespeare	Sonnets	15	22		London, 1802 .	19	12
Jonson	Song to Celia ..	14	23		World Is Too Much	17	16
Herrick	Corinna's Going A-Maying ...	15	17		Intimations of Immortality .	18	14
Lovelace	To Lucasta	12	17		Kubla Khan .	17	13
	To Althea	14	16	Coleridge	Ancient Mariner	17	20
Bacon	Of Studies	13	17		Marmion	13	19
Bunyan	Pilgrim's Progress	16	14	Scott	Chillon	16	20
Milton	L'Allegro	18	24	Byron	Ode to West Wind	20	22
	Il Penseroso ...	18	24	Shelley	The Cloud	17	15
	Lycidas	19	18		To a Skylark ..	20	24
	Paradise Lost ..	23	13		On Chapman's Homer	15	15
	On His Blindness	16	24	Keats	To a Nightingale	16	19
Dryden	Alexander's Feast	16	21		On a Grecian Urn	20	18
Addison	Spectator	17	14		Eve of St. Agnes	18	15
Pope	Rape of the Lock	19	17		La Belle sans Merci	18	21
Collins	Ode to Evening	17	12	Tennyson	Ulysses	18	12
Gray	Elegy	20	24		Lady of Shallot	15	18
Goldsmith	Deserted Village	15	20		Morte D'Arthur	14	12
Burns	To a Mouse ...	20	24		Locksley Hall .	14	12
	Cotter's Saturday Night ...	21	22		Break, Break, Break	15	15
	A Bard's Epitaph	13	15		In Memoriam .	16	12
	Tam O'Shanter .	20	24		The Revenge ..	12	14
	Auld Lang Syne	17	15		Crossing the Bar	16	18
	John Anderson .	16	20	Browning	My Last Duchess	18	22
	To Mary in Heaven	13	15		Incident in a French Camp	12	20
	Highland Mary	18	22		Home Thoughts, Abroad	15	17
	A Man's a Man	14	21		Rabbi Ben Ezra	17	17
Wordsworth	We Are Seven .	14	17		Prospice	13	14
	She Dwelt Among	16	19	Arnold	Sohrab and Rustum	16	13
	I Traveled Among	13	12				
	Three Years She Grew	16	13				
	My Heart Leaps Up	18	14				
	The Solitary Reaper	18	15				

The figures in the third column are the percentages which those in the second are of the first. The method of securing the figures in the right-hand group of three columns was analogous to that just described. This method of computing shows a higher degree of overlapping than does the preceding, the results being 56.7 per cent of overlapping of college on high school lists, and 62.3 per cent of overlapping of the high school on the college lists.

Overlapping of different pages of selections read.—Table CXXXVI shows at the foot of its first column of figures that a total of almost 28,000 different pages are represented in the 1792 different selections reported by the forty-eight high school and college instructors co-operating. As the organization of this table is similar to that of Table CXXXIII, interpretations may be made without any special word of explanation. It appears that 41.6 per cent of the 2981.7 different pages of selections reported in common in a half or more of the high school lists are also in college lists. There are also large proportionate duplications for selections reported for smaller proportions of the high schools. From the table it is possible to compute the totals of the different pages represented in the high school and college lists. These are 20,692.5 and 13,352.3. The different pages of selections to be found in both lists, which may also be ascertained from the table, are 6061.8. This amount is 29.3 and 45.4 per cent, respectively, of the totals of pages in high school and college lists, which means that these lists overlap in these proportions upon each other. These proportions are somewhat smaller than those found on other bases of measurement so far reported, but this is owing to the brevity of many of the selections common to both lists. This brevity is partly apparent in the list of selections in Table CXXXIV.

TABLE CXXXV

OVERLAPPING OF LISTS OF SELECTIONS READ IN TWENTY-FOUR HIGH SCHOOL COURSES IN ENGLISH LITERATURE AND TWENTY-FOUR COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE WEIGHTED ACCORDING TO THE FREQUENCY OF APPEARANCE OF EACH SELECTION

Proportion of 24 Schools	High School			College		
	Total Frequency of Appearance in 24 High School Lists	Frequency of Appearance in 24 College Lists	Per Cent of Overlapping of College on High School Frequency	Total Frequency of Appearance in 24 College Lists	Frequency of Appearance in 24 High School Lists	Per Cent of Overlapping of High School on College Frequency
A half or more ...	1652	1498	90.7	2352	2254	95.8
A third to a half..	1060	740	69.8	1760	980	55.7
4.2 per cent to a third	4088	1560	38.2	3108	1264	40.7
Totals	6700	3798	56.7	7220	4498	62.3

TABLE CXXXVI

OVERLAPPING OF DIFFERENT PAGES OF SELECTIONS READ IN TWENTY-FOUR HIGH SCHOOL COURSES IN ENGLISH LITERATURE AND TWENTY-FOUR COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

PROPORTION OF 24 HIGH SCHOOLS	NUMBER OF DIFFERENT EQUATED PAGES REPRESENTED	NUMBER OF DIFFERENT EQUATED PAGES READ IN				PER CENT OF OVERLAPPING OF COLLEGE ON HIGH SCHOOL
		Half or More of Colleges	A Third to Half of Colleges	4.2 Per Cent to a Third of Colleges	No College	
A half or more	2,981.7	701.0	41.4	498.8	1,740.5	41.6
A third to a half ..	1,209.4	590.5	62.9	295.8	260.1	78.5
4.2 per cent to a third	16,501.4	242.3	386.2	3,242.9	12,630.0	23.5
No high school	7,290.4	20.1	480.4	6,789.5	...	...
DIFFERENT EQUATED TOTAL PAGES	27,982.9	1,554.0	970.9	10,827.4	14,630.6	...

The last measure of overlapping.—It is desirable to secure also a measure of overlapping that allows the influence of both the length of the selections and the frequency of appearance in the lists. This is afforded by Table CXXXVII, which bears the same relationship to Table CXXXVI as Table CXXXV bears to Table CXXXIII. Space will not be taken to interpret in detail the data it contains, but it may be said in brief that this measure, which is the best of the four presented, shows more overlapping than that immediately preceding, but somewhat less than the first two reported upon.

TABLE CXXXVII

OVERLAPPING OF PAGES OF SELECTIONS READ IN TWENTY-FOUR HIGH SCHOOL COURSES IN ENGLISH LITERATURE AND TWENTY-FOUR COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE WEIGHTED ACCORDING TO THE FREQUENCY OF APPEARANCE OF EACH SELECTION

PROPORTION OF 24 SCHOOLS	HIGH SCHOOL			COLLEGE		
	Total Pages Read in 24 High Schools	Pages Read in 24 Colleges	Per Cent of Overlapping of College on High School	Total Pages Read in 24 Colleges	Pages Read in 24 High Schools	Per Cent of Overlapping of High School on College
A half or more	41,749.3	17,367.0	41.6	21,175.5	20,893.6	98.7
A third to a half ..	12,093.5	9,492.3	78.5	9,709.2	4,904.8	50.4
4.2 per cent to a third	66,005.6	15,485.6	23.5	43,309.6	16,150.2	37.3
TOTALS	119,848.4	42,344.9	35.3	74,094.3	41,948.6	56.6

The results of the four measures compared.—It will assist in securing a definite impression of the extent of overlapping of selections read to refer to Figure 83, which shows the proportions of overlapping found by all four methods used. It is designed also to compare the proportions of overlapping of college upon high school selections and of high school upon college selections and tells a story too significant to be longer ignored in considering the relationships of secondary and higher institutions.

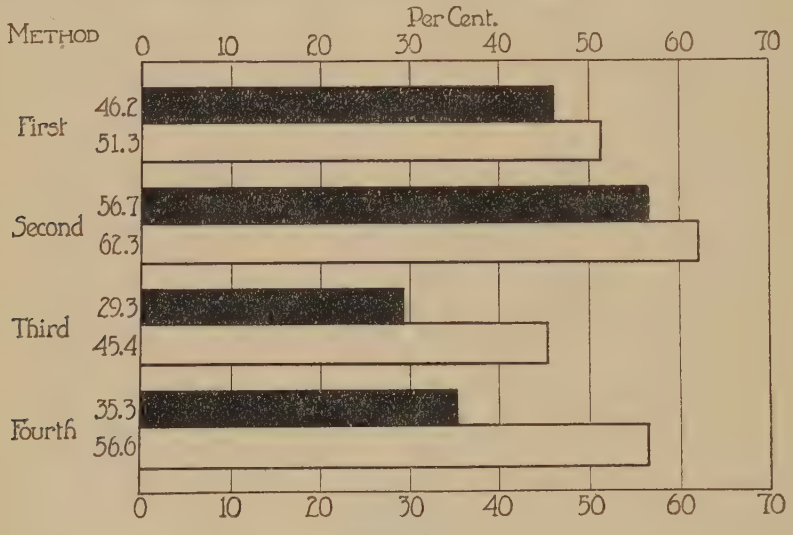

Figure 83

Percentages of overlapping in selections read in 24 high school and 24 college courses in the history of English literature (black, college selections upon high school selections; in outline, high school selections upon college selections)

IV. Quantitative Requirements Compared

Gross requirements compared.—Owing to the complete manner in which replies to inquiries were made by instructors, it was possible to ascertain the total numbers of equated pages required in enough high school and college courses to be indicative of the tendency as to gross reading requirements. These are seen (Table CXXXVIII) to be somewhat greater in colleges than in high schools, the excess ranging for the three measures from approximately 350 to 650 pages. It should be stated that the amounts indicated for high schools do not include literature read during other portions of the full three- or four-year course; report is here made only on the course in the history of English literature itself. As the measures presented stand, it is apparent that the reading requirements of at least a fourth of the high school courses are in excess of those of half of the college courses. Although there are without doubt restrictions placed by

abilities of students on the two levels represented, as far as the total amount of material covered is concerned, it should be possible to accomplish almost as much in the high school as in the college courses.

TABLE CXXXVIII

MEDIAN AND QUARTILE NUMBERS OF EQUATED PAGES OF READING REQUIRED IN TWENTY-ONE HIGH SCHOOL AND TWENTY-FIVE COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

MEASURE OF TENDENCY	HIGH SCHOOL	COLLEGE
First quartile	1114.4	1773.3
Median	1780.2	2127.3
Third quartile	2185.3	2624.5

Pages per clock hour required.—Because it has been seen in an earlier portion of the chapter (Table CXXVI) that there is a notable excess in the total amount of time devoted to high school courses over that devoted to college courses, no comparison of gross amounts required can give a proper impression of their relative difficulty as measured by the extent of the reading requirements. A better basis is afforded in the numbers of pages per clock hour of class time as presented in Table CXXXIX. Both the distributions of the schools and the measures of central tendency here presented show that the requirements in colleges are heavier.

TABLE CXXXIX

NUMBERS OF PAGES OF READING REQUIRED PER CLOCK HOUR OF CLASS WORK IN HIGH SCHOOL AND COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

PAGES PER CLOCK HOUR	HIGH SCHOOL	COLLEGE
0- 9	2	..
10-19	12	3
20-29	4	10
30-39	..	9
40-49	2	2
50-59	..	1
60-69	1	..
MEDIAN PAGES PER CLOCK HOUR	16.8	29.0
AVERAGE PAGES PER CLOCK HOUR	21.1	29.0

V. METHODS AND RELATED MATTERS

Types of classroom procedure.—The average number of hours and distribution of the types of classroom procedure are shown in Table CXL. High school teachers are seen to resort in twice the proportionate amount

that college instructors do to recitation. In fact this constitutes four fifths of the work in class in the high school and only two fifths in college courses. On the other hand, college instructors devote a third to lecture, while high school teachers use a negligible proportion in this way. On this account, college instructors also spend a larger proportion of time in the quiz method. Under miscellaneous procedure has been included a wide variety, such as discussion, mixed, student reports, etc. It may be doubted whether the essential difference in procedure here found is desirable in view of the small difference in age between those taking the high school and college courses represented. As will be seen presently, this larger use of the lecture method in the upper unit can hardly be excused on the grounds of the larger class sections.

TABLE CXL

AVERAGE NUMBERS OF HOURS AND PERCENTAGES OF CLASS TIME SPENT IN EACH TYPE OF CLASSROOM PROCEDURE IN TWENTY-TWO HIGH SCHOOL AND TWENTY-FIVE COLLEGE COURSES IN THE HISTORY OF ENGLISH LITERATURE

INSTITUTION	RECITATION		LECTURE		QUIZ		MISCELLANEOUS	
	Number of Hours	Per Cent	Number of Hours	Per Cent	Number of Hours	Per Cent	Number of Hours	Per Cent
High school ..	124.5	81.9	7.6	5.0	2.5	1.6	17.5	11.5
College	36.4	40.4	29.7	33.0	8.4	9.3	15.6	17.3

Oral and written reports.—Responses to questions on the point show that almost four fifths of the high schools require oral reports of students in the course in the history of English literature. The proportion of colleges in which such a requirement is made is slightly more than half as large. The proportions of institutions on the two levels in which written reports are required are almost identical, being slightly more than four fifths of the schools represented. The total requirement in words tends to be somewhat larger in high schools than in colleges, the medians being respectively 5500 and 4800. It should not be forgotten in this connection that the high school courses extend over a larger amount of class time.

The number of students in a section.—The range in size of sections in twenty high schools reporting is from twelve to thirty-six students, the average being not far from twenty-five; the range in size for colleges in sixteen colleges reporting is fifteen to sixty students, the average being in the vicinity of thirty, or slightly above. The conclusion is that class sections tend to be somewhat larger in colleges than in high school, but for the most part not so large as to oblige the almost predominant use of the lecture method.

VI. Opinions of Instructors As to Differences between High School and College Courses

The instructors appealed to for information concerning their courses were asked also to venture their *opinions* as to the differences that, first *do* and, second, *should* obtain between the high school and college courses in this field. These opinions cover a wide range and are often contradictory, but some at least merit mention. They have been classified under five heads, the aims of the course, the methods, the quality of the work, the extent of reading, and miscellaneous. There is no marked trend of judgment under the first head, the aims of the courses, unless it be that high school courses should stress emotional appeal and command of factual materials, while college courses do and should go in the direction of the development of a critical sense and the emphasis on technical analysis. The essential difference in method, it is believed obtains and should obtain, bears on the greater use of the lecture method in college, although some instructors even in the college group point out that care should be exercised not to use it too extensively. The college course is and should be, say the instructors who touch upon distinctions in quality, more intensive than the high school course, and does and should stress a more critical analysis. Moreover, they do and should involve more extensive reading. Some of the statements emanating from college circles are inclined to disparage the high school course.

In some instances the opinions as cited coincide roughly with the facts of practice, but they tend also in these and other instances to enlarge upon differences that are only partially existent. If certain of the distinctions were actually achieved, they might reduce appreciably the bootless repetition that has been incontrovertibly demonstrated.

VII. Recapitulation and Conclusion

In both portions of their reading requirements these randomly selected high school and college offerings in the history of English literature show a large extent of overlapping. While there are differences in content, there is much more of likeness than of dissimilarity. The textbooks, used in most high schools and in a majority of colleges, differ in that minor authors are stressed for the college more than for the high school. In addition, personal biography is stressed more, and literary biography and works somewhat less, in high school. Such large portions, also, as extracts and mechanical details receive more attention. These distinctions are only those of relative amounts, no one large topic being ignored or neglected in any volume analyzed. In the selections read, also, which constitute much the predominant portion of both high school and college courses, there are astonishingly

large amounts and percentages of actual duplication. It appears that literature that is regarded as important for high school purposes is also regarded as essential to college courses, and no principle of distinction seems to be operative in the selection of materials for classwork on the two levels.

Quantitative differences both as to total amounts of materials read and in terms of requirements per clock hour of class time, are in favor of the college. These amounts are not far enough apart for courses on the two levels to make it impossible to achieve essentially the same ends on both levels on which they are given, especially as requirements in some high schools exceed those in some colleges. The most notable difference to be found in the data used in the study concerns the classroom procedure, in that college instructors much more frequently resort to the lecture method, even though classes are usually small enough to make another method feasible.

In attempting to appreciate the significance of this extent of overlapping it should not be left out of account that the materials reported upon are usually required of all high school students and are found in that college course in English literature which is taken by more students than any other—in fact, colleges often require it. This makes inevitable a large amount of actual repetition. It does not, however, include all repetition in this field, as high schools often prescribe materials in American literature, and these are also to some extent duplicated in another common college course.

The findings of this study of overlapping in English literature constitute a compelling argument for modifying the college courses and the high school offerings in this field, so that greater total progress can be achieved in the time spent by the student. They demonstrate unmistakably our error in distributing the task of giving this elementary instruction in English literature in two institutions, the authorities and instructor in neither of which seem to be aware or to desire to become aware of what is going forward in the other. Even if it is admitted that it is desirable for students to make more than a single contact during their school careers with many of these selections, there could be no point in having this accomplished under conditions which do not assure a different type of approach on each occasion. It may well be doubted whether this regrettable waste can even be eliminated in the present organization of secondary and higher education, although steps should be taken in this direction without delay no matter what the arrangement of the system of schools. The logical step seems to be to bring the work together in the same institution where the duplication and repetition will more readily become apparent and be more promptly obviated. This means the establishment of junior college work in connection with the high school unit. This step is the more to be recommended by the outstanding fact of similarity of the curricular materials concerned, a fact which marks those found in the upper unit as essentially secondary in character.

CHAPTER XXX

OVERLAPPING IN ENGLISH COMPOSITION

I. Preliminary Considerations

Distribution of institutions represented.—For the purpose of comparing the work in the field of English composition in high school and college with a view to ascertaining differences and similarities, appeal was made for information concerning courses to heads of departments in high schools and colleges in states included by the North Central Association of Colleges and Secondary Schools. The selection of institutions to which blanks of inquiry were sent was made on a random basis, except that all high schools included in the list were in cities with a population of 7500 or greater, that all these, as well as all colleges and universities included, are approved schools, and that colleges only which had freshman courses which seemed from a reading of the descriptions in catalogues to be exclusively concerned with composition and rhetoric were introduced into the list.

Responses usable in at least a portion of the items in the range of inquiry came from 27 high schools in the following states: Illinois, 3 schools; Indiana, 6; Michigan, 7; Minnesota, 1; Montana, 1; Ohio, 5; and Wisconsin, 4. The 34 colleges represented in the study are located in: Colorado, 2; Illinois, 8; Indiana, 2; Iowa, 5; Michigan, 2; Minnesota, 1; Missouri, 3; Nebraska, 2; Ohio, 5; Oklahoma, 2; South Dakota, 1; and Wisconsin, 1. Among this group of higher institutions are four universities, three state and one private. The remainder are institutions of the separate college type.

The courses represented.—The blank of inquiry for the high schools was designed to secure information from which an analysis could be made of the full range of work in the field of English composition throughout the four years of the lower unit. That sent to colleges concerned only the first course usually bearing such titles as "Freshman rhetoric" and "Freshman composition," or whose descriptions appearing in catalogues indicated that they were of this character. The attempt was made to avoid as far as possible the obviously composite courses in college including recognition of both English composition and English literature. As will be seen later, a small proportion of the courses represented have their literary constituent, but the composition constituent only was incorporated in the analysis. The comparison in this chapter, therefore, pertains to the composition portion of high school courses in English throughout the three or four years in which it is required and the work in freshman composition in colleges.

The time devoted to composition.—The tendencies as to the number of clock hours assigned to instruction in composition in the courses represented

are shown in Table CXLI, which presents the range of the middle fifty per cent of the courses (first to third quartile) and the number of clock hours of the median case, for each year of the high school, for all years of the high school, and for the college courses. These measures are identical for the first two high school years, but the amount of time devoted to this work experiences an appreciable decline in the third and fourth high school years. The median number of clock hours for all four years is almost twice the median for college courses. The range of the middle fifty per cent in high schools is also much wider in high school than in college. In college it extends from 90 to 99 hours only. In fact, there are 17, or just half, of the 34 college cases at 99 hours. Measured in median amounts, the typical student receives almost 300 clock hours of instruction in this field during his progress through the high school and the freshman year in college, approximately a third of this being in the latter institution.

TABLE CXLI

MEDIAN AND QUARTILE NUMBERS OF CLOCK HOURS OF CLASS TIME IN THE WORK IN ENGLISH COMPOSITION IN TWENTY-SIX HIGH SCHOOLS AND IN THE COURSES IN FRESHMAN COMPOSITION IN THIRTY-FOUR COLLEGES

MEASURE OF TENDENCY	HIGH SCHOOL YEARS					COLLEGE
	I	II	III	IV	All	
First quartile	45.0	45.0	28.5	6.7	151.2	90.0
Median	60.0	60.0	48.0	37.5	187.5	99.0
Third quartile	75.0	75.0	66.6	60.0	253.2	99.0

II. ANALYSIS OF THE STUDY AND READING CONTENT OF INSTRUCTION IN COMPOSITION

The method of analysis.—Two chief components of the high school and college courses in composition were investigated in this study, the textual content and the requirements in composition, oral and written. The nature of the former was ascertained by a careful and detailed analysis of the books reported as texts by heads of departments. The first step in the analysis was the preparation of a list of divisions and subdivisions of content made during a scrutiny of several texts with this end in view. The next step—and that which consumed most of the time devoted to the study—consisted in distributing all the materials reported as textual to these and to such other divisions and subdivisions as made their appearance during the work of analysis. All measurements were made to the nearest tenth of a page.

The blank of inquiry to department heads in high schools requested the names of textbooks and the portions (i.e., pages) of these covered in each of the four high school years. The analysis, consequently, was made on

a year-by-year basis. However, the results of tabulations are presented for each of two pairs of high school years, the first and second as one pair and the third and fourth as the other. This is in addition to the presentation of the analysis of content for the full four years. All tabular comparisons, therefore, involve four series of measures, viz., the first two high school years, the second two years, all four years, and the freshman college year.

TABLE CXLII

LIST OF VOLUMES REPORTED AS TEXTBOOKS IN HIGH SCHOOL COMPOSITION AND THEIR FREQUENCY OF APPEARANCE

AUTHOR	TITLE	FREQUENCY
1. Bolenius	Everyday English Composition	1
2. Brooks	English Composition, Book II	2
3. Canby and Opdycke	Elements of Composition	1
4. Claxton and McGinnis	Effective English	1
5. Davis	Practical Exercises in English	1
6. Greever and Jones	Century Handbook[a]	5
7. Herrick and Damon	New Composition and Rhetoric	1
8. Hitchcock	Composition and Rhetoric	2
9. Hitchcock	New Practice Book	4
10. Knowles	Oral English	1
11. Lewis and Hosic	Practical English for High Schools	8
12. Lyons	Elements of Debating	1
13. O'Neill	Debate and Oral Discussion	1
14. Palmer	Self-Cultivation in English	1
15. Scott and Denney	Composition Book	1
16. Tanner	Essays and Essay Writing[a]	1
17. Thomas, Howe, and O'Hair	Composition and Rhetoric (revised)	1
18. Ward	Junior English Grammar	1
19. Ward	Sentence and Theme	1
20. Ward	Theme Building	2
21. Woolley	Handbook of Composition[a]	2
TOTAL FREQUENCY		39

[a] To be found also in the college list of Table CXLIII.

It is perhaps gratuitous to point out that the dissection of texts was made primarily to arrive at the *textual content of courses,* rather than at the content of the textbooks *per se.*

The textbooks used.—The lists of textbooks used by the schools represented in the analysis of courses and their frequency of appearance are shown in Tables CXLII and CXLIII. Such portions of these as have been reported as being used have been analyzed. At least three facts are worth noting about the lists. One of these is the total frequencies to be found

at the foot of the tables. Remembering that the numbers of high schools and colleges represented in this portion of the study are, respectively, 17 and 27,[1] it may be seen that on the average the courses in both units require the use of slightly more than two volumes. A second fact of some importance is the overlapping of the lists; three titles on the college list are also to be found on the high school list, two of them at least appearing with considerable frequency in both lists. The third is the number of books on the college list not strictly of textual character, such as Bruce and Montgomery's *New World,* or Scott and Zeitlen's *College Readings.* Such books are not to be found among the high school texts.

TABLE CXLIII

LIST OF VOLUMES REPORTED AS TEXTBOOKS IN FRESHMAN COLLEGE COMPOSITION AND THEIR FREQUENCY OF APPEARANCE

AUTHOR	TITLE	FREQUENCY
1. Aydelotte	English Composition and Literature	1
2. Brown and Barnes	Art of Writing English	1
3. Bruce and Montgomery	The New World	4
4. Canby *et al.*	English Composition	1
5. Carson	Handbook	1
6. Cunliffe and Loemer	Writing of Today	2
7. Foerster	Essays for College Men	1
8. Foerster and Pierson	American Ideals	1
9. Foerster and Stedman	Sentences and Thinking	2
10. Fulton	Expository Writing	1
11. Genung	Principles of Rhetoric	1
12. Greenough and Hersey	English Composition	1
13. Greever and Jones	Century Handbook[a]	11
14. Lathrop	Freshman Composition	6
15. Linn	Essentials of English	1
16. Manly and Rickert	Writing of Today	7
17. Nutter, Greenough, and Hersey	Specimens of Prose Composition	2
18. Rice	College and Future	1
19. Scott and Denney	Paragraph Writing	1
20. Scott and Zeitlin	College Readings	8
21. Slater	Freshman Rhetoric	2
22. Stevenson	Travels with a Donkey	1
23. Tanner	Essays and Essay Writing[a]	1
24. Wendell	English Composition	1
25. Woolley	Handbook of Composition[a]	5
TOTAL FREQUENCY		64

[a] To be found also in the high school list of Table CXLII.

[1] The numbers of institutions represented here are somewhat smaller than indicated near the opening of the chapter because of lack of complete response and the inaccessibility of a few of the volumes reported.

The divisions and their median percentages of recognition.—The twenty-six divisions to which the content of the textual materials of the courses was distributed are listed in Table CXLIV, which gives also the percentages devoted to each division by the median course represented. This table is to be read as follows: the median high school course devoted during the first two years 19 per cent of its total textual content to grammar, gave no space to this division during the last two years; and assigned 13.4 per cent of the full high school course to it; the median college course is composed in only 1.4 per cent of work in this division. The reader will note the large number of zero percentages in the table. This signifies that in all these instances no portion of the textual content is assigned to these divisions in at least a half of the schools included in the study, although the presence of the divisions in the list signifies that some institution or institutions recognize them in appreciable amount.

TABLE CXLIV

MEDIAN PERCENTAGES OF THE COURSES IN ENGLISH COMPOSITION DEVOTED TO VARIOUS DIVISIONS

DIVISIONS	HIGH SCHOOL YEARS			COLLEGES
	I–II	III–IV	All	
1. Grammar	19.0	0.0	13.4	1.4
2. Punctuation	8.1	0.0	3.1	2.1
3. Spelling, pronunciation	2.4	0.0	2.9	2.0
4. Diction	5.1	0.0	5.4	5.1
5. Sentence	7.8	3.4	10.2	9.7
6. Paragraph	7.9	0.0	6.1	2.1
7. Composition as a whole	1.2	0.0	1.9	1.6
8. Narration	8.9	0.0	7.1	3.0
9. Description	3.0	0.0	2.5	2.2
10. Exposition	3.6	0.0	3.9	4.4
11. Argumentation	0.0	13.4	7.5	2.4
12. Letter-writing	14.1	0.0	8.8	1.1
13. News-writing	0.0	0.0	0.0	0.0
14. Oral composition	0.0	0.0	0.0	0.0
15. Narrative models	0.0	0.0	0.0	8.4
16. Descriptive models	0.0	0.0	0.0	0.0
17. Expository models	0.0	0.0	0.0	0.0
18. Argumentative models	0.0	0.0	0.0	0.0
19. Unclassified models	0.0	0.0	0.0	0.0
20. Versification	0.0	0.0	0.0	0.0
21. Figures of speech	0.0	0.0	0.0	0.0
22. Literary types	0.0	0.0	0.0	0.0
23. Principles of rhetoric	0.0	0.0	0.0	0.0
24. Introductory	1.1	0.0	1.1	1.4
25. Theme correction	0.0	0.0	0.0	0.0
26. All others	0.0	0.0	0.0	1.8

Although most of the likenesses and differences to be found will be emphasized in subsequent portions of this section, a few of the more important may be mentioned at this point. In only two instances is there appreciable recognition of the divisions during the second pair of years in high school courses, most emphases being in the earlier years. The two exceptions are the sentence and argumentation. When the full high school courses are compared with college courses the percentages of the former that most notably exceed the latter are those for grammar and letter-writing—two elementary aspects of training in English composition. Those receiving considerably more emphasis in the lower unit are: the paragraph, narration, and argumentation. Those in which the courses in the two units are not far from equal are: punctuation, spelling and pronunciation, diction, the sentence, the composition as a whole, description, exposition, and the introductory materials. The two divisions in which the college medians show an excess are narrative models and "all others."

Comparison by groups of divisions.—A grosser comparison not without its significance is afforded by Table CXLV and Figure 84, in which are presented the percentages by groups of divisions. Under Group A, *mechanics,* have been included grammar, punctuation, spelling, and pronunciation; under Group B, *diction only;* under Group C, *structure,* have been introduced the sentence, paragraph, and composition as a whole; under Group D, *forms of discourse,* narration, description, exposition, argumentation, letter-writing, news-writing, and oral composition; under Group E, *models,* the models for all types of writing; under Group F, *literary forms,* the divisions numbered 20, 21, 22, and 23; and under Group G, *miscellaneous,* the remaining divisions. Although the classification and grouping may be open to criticism at certain points, it is believed that they are serviceable for the uses to which the results are here put.

TABLE CXLV

MEDIAN PERCENTAGES OF HIGH SCHOOL AND COLLEGE COURSES IN ENGLISH COMPOSITION DEVOTED TO GROUPS OF ITS VARIOUS DIVISIONS

GROUPS	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
A. Mechanics	30.3	0.0	24.6	6.4
B. Diction	5.1	0.0	5.4	5.1
C. Structure	19.3	4.9	21.5	14.0
D. Forms of discourse	36.0	51.4	39.7	19.6
E. Models	0.0	0.0	0.0	52.4
F. Literary forms	0.0	0.0	0.0	0.8
G. Miscellaneous	3.1	0.0	2.5	5.7

The meaning of the table and figure is largely that the median proportions of recognition of Groups A, B, C, and D in high school courses exceed those in college courses, although the difference is not marked for B; that Group E in the median case comprehends a large proportion of the textual content of college courses, but no part of the high school course; that Group F has little recognition in either group of courses; and that the proportion of miscellaneous in courses in the lower unit tends to be less than that in college courses.

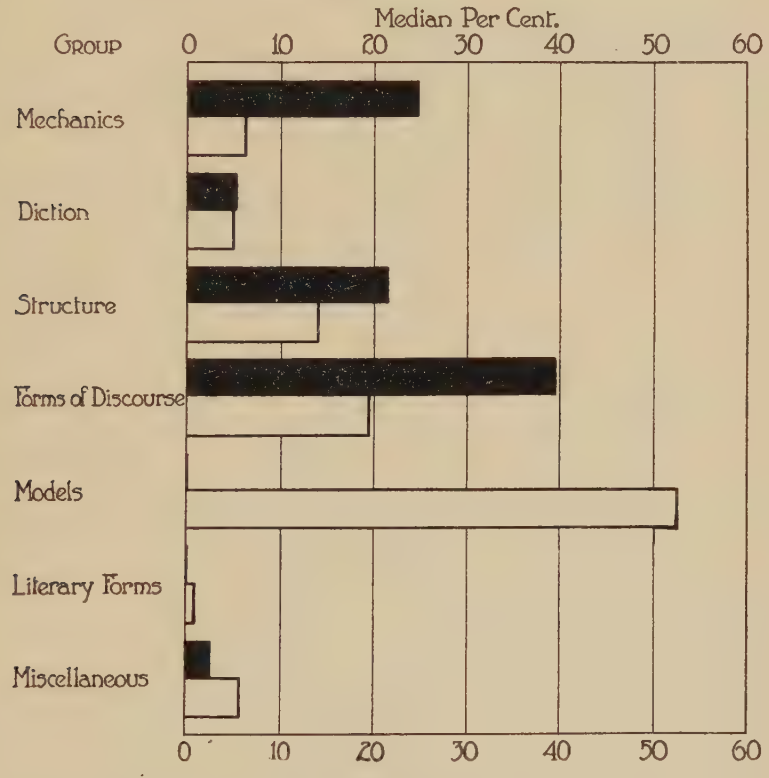

Figure 84

Median percentages of courses in composition devoted to the groups of subdivisions (black, high school; in outline, college)

One of the most marked differences between the courses on the two levels is that in Group E, *models*. Since this type of course content is handled rather differently and usually less intensively than are other types, there is some justification for comparing the percentages of content when this constituent has been omitted from the material of the college courses. Recomputing the median percentages under these conditions results in the following distribution for the college courses: mechanics, 13 per cent;

diction, 11; structure, 29; forms of discourse, 41; literary forms, 2; miscellaneous, 12. A comparison of these figures with those for the full high school courses in Table CXLV shows more of similarity than when the work on models is included, the only distinctions thereby accentuated being in diction and miscellaneous.

As medians only are not sufficiently indicative of tendencies in the apportionment of courses to the several groups as named, distributions of high schools and colleges by percentages of textual content given to six important groups in point of space assigned are presented in the next six tables (CXLVI-CLI).

TABLE CXLVI

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

A. MECHANICS

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	1	12	1	5
0.1- 4.9	..	..	..	8
5.0- 9.9	1	..	1	7
10.0-19.9	..	1	5	6
20.0-29.9	6	..	6	1
30.0-39.9	5	4	2	..
40.0-49.9	2	..	..	..
50.0-59.9	1	..	1	..
60.0-69.9	1	..	1	..
TOTALS	17	17	17	27
MEDIAN CASE	30.3	0.0	24.6	6.4

As with the other groups, the distributions for *mechanics* bear out the expectation to which the medians give rise. The largest proportions tend to be assigned in the first two high school years, with relatively few high school courses with such content in the last two years. The distribution of high school courses as to this constituent when all four years are included tends to be toward the higher percentages, but it is also to be noted that some college courses have as large percentages of mechanics as do some high school courses. The differences as concern *diction* (Table CXLVII) are not as large, the chief distinction being the smaller proportions in the upper pair of high school years. The distributions in the last two columns are very similar. Although there is considerable difference in the distributions between the lower and upper high school years in *structure,* the high school and college distributions are much more nearly similar than as shown in Table CXLVI for mechanics. In *forms of discourse* (Table CXLIX) the distributions tend toward the higher percentages in

both divisions of the high school course, but those for some colleges are also high. It is when we direct attention again to *models* (Table CL) that we find the most striking difference in content, as only a single high school gives an appreciable amount of this, while college courses range from none to the full textual content. Only a relatively small number of courses on all levels represented devote any large proportion of the total content to *literary forms* (Table CLI).

TABLE CXLVII

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

B. DICTION

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	1	10	1	1
0.1- 4.9	7	2	7	11
5.0- 9.9	8	1	7	11
10.0-19.9	1	4	2	4
TOTALS	17	17	17	27
MEDIAN CASE	5.1	0.0	5.4	5.1

TABLE CXLVIII

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

C. STRUCTURE

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	..	8	..	1
0.1- 4.9	..	1	..	1
5.0- 9.9	1	..	..	4
10.0-19.9	8	1	8	11
20.0-29.9	5	1	5	4
30.0-39.9	1	1	3	4
40.0-49.9	1	2	1	2
50.0-59.9	1	2	..	..
60.0-69.9	..	..	..	..
70.0-79.9	..	..	..	..
80.0-89.9	..	..	..	..
90.0-99.9	..	1	..	..
TOTALS	17	17	17	27
MEDIAN CASE	19.3	4.9	21.5	14.0

The reader can hardly fail to have noted the wide range shown for most of these groups in courses on all three levels represented. There is apparent an unsatisfactory lack of standardization of content appropriate to courses on any level or in either unit. Such a failure must result in poor articulation of the high school and college work and in excessive overlapping of the courses in the two units represented. It appears also that, if textual content in one of the units is on the secondary school level, that in the other is very much akin to it in this respect.

Illustrative comparison of percentage distributions by divisions.—It remains to illustrate distributions for some of the divisions listed in Table CXLIV, in order to provide the details of a more nearly complete picture of the similarities and differences of the courses in the institutions included. Those selected for tabular presentation here are (a) the two in which high school proportions markedly exceed those of colleges, viz., grammar, and letter-writing; (b) the one in which the college proportions markedly exceed those of high schools, that is, narrative models; and (c) two in which the median proportions are relatively large and approximately equal in the high school and college courses, viz., the sentence and exposition. Distribution for a third division, diction, has already been shown in Table CXLVII, since in the classification of content followed the division has also been designated as a group. The illustrative distributions are presented in Tables CLII-CLVI.

TABLE CXLIX

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

D. FORMS OF DISCOURSE

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	..	1	..	2
0.1- 4.9	..	..	..	4
5.0- 9.9	..	2	..	3
10.0-19.9	2	2	2	5
20.0-29.9	5	1	3	8
30.0-39.9	4	1	4	2
40.0-49.9	3	1	6	2
50.0-59.9	2	1	1	1
60.0-69.9	..	2	..	..
70.0-79.9	1	1	..	..
80.0-89.9	..	..	1	..
90.0-99.9	..	1	..	..
100	..	4	..	..
TOTALS	17	17	17	27
MEDIAN CASE	36.0	51.4	39.7	19.6

TABLE CL

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

E. MODELS

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	17	16	16	7
0.1- 4.9	..	..	..	..
5.0- 9.9	..	..	1	..
10.0-19.9	..	..	..	2
20.0-29.9	..	..	..	1
30.0-39.9	..	1	..	..
40.0-49.9	..	..	..	2
50.0-59.9	..	..	..	8
60.0-69.9	..	..	..	3
70.0-79.9	..	..	..	..
80.0-89.9	..	..	..	3
90.0-99.9	..	..	..	..
100	..	..	..	1
TOTALS	17	17	17	27
MEDIAN CASE	0.0	0.0	0.0	52.4

TABLE CLI

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

F. LITERARY FORMS

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	10	12	9	11
0.1- 4.9	4	2	5	13
5.0- 9.9	3	..	2	..
10.0-19.9	..	2	..	2
20.0-29.9	..	..	..	1
30.0-39.9	..	..	1	..
40.0-49.9	..	..	..	..
50.0-59.9	..	..	..	..
60.0-69.9	..	..	..	..
70.0-79.9	..	1	..	..
TOTALS	17	17	17	27
MEDIAN CASE	0.0	0.0	0.0	0.8

The lower years of the high school unit, not the upper, seem to be the place of appearance of a considerable constituent of grammar (Table CLII). Most colleges make some recognition of this division, but the proportion in only two instances passes the five per cent line. The situation for letter-writing (Table CLIII) is much the same, but with an even greater contrast between high school and college courses. That for narrative models (Table CLIV) is emphatically reversed, since no high school courses in the group represented were found to have more than an incidental recognition of this division. Even in the college courses approximately a half have nothing but incidental content of this sort, a condition which is characteristic also of models in the remaining forms of discourse. The distributions for all high school years of content dealing with the sentence and exposition are not notably dissimilar from those for the college (Table CLV-CLVI), but there are interesting differences when the two pairs of high school years are compared. In weighing the value of these comparisons it is desirable to bear in mind that equal percentages as here shown would be much enlarged if the models constituent in college courses is left out of account.

TABLE CLII

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO GRAMMAR

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	1	12	1	10
0.1- 4.9	1	..	1	15
5.0- 9.9	1	1	1	2
10.0-19.9	8	4	11	..
20.0-29.9	4	..	1	..
30.0-39.9	1	..	2	..
40.0-49.9	1	..	..	..
TOTALS	17	17	17	27
MEDIAN CASE	19.0	0.0	13.4	1.4

In this group of tables is found again the wide range of the proportionate recognition and the apparent want of standardization of content for any level.

Other qualitative differences.—The quantitative measures so far presented have discovered certain qualitative differences to which attention has been called, but, obviously, the methods used are not of such a nature as to make possible the location of all. Those who assisted in the process of analysis referred sometimes to differences in the difficulty of the portions of the textual content. An instance of such differences is the theoretical

portions of the treatment of the forms of discourse. In college texts this treatment was usually on a somewhat higher level of difficulty. The differences observable ran along such lines as the difficulty of vocabulary used, illustrations, terminology, etc. These differences could not be, and were not, as noticeable in mechanical portions like grammar and punctuation as in portions like the forms of discourse already mentioned. The fully adequate method of comparing difficulty would have been the institution of a program of testing, a procedure too extended for the purposes of this investigation.

TABLE CLIII

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

LETTER-WRITING

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	1	12	2	7
0.1- 4.9	2	2	3	20
5.0- 9.9	3	3	5	..
10.0-19.9	6	..	5	..
20.0-29.9	3	..	2	..
30.0-39.9	1	..	..	..
40.0-49.9	..	..	..	..
50.0-59.9	..	..	..	..
60.0-69.9	1	..	..	..
TOTALS	17	17	17	27
MEDIAN CASE	14.1	0.0	8.8	1.1

TABLE CLIV

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO

NARRATIVE MODELS

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	17	17	17	13
0.1- 4.9	..	..	..	..
5.0- 9.9	..	..	..	1
10.0-19.9	..	..	..	12
20.0-29.9	..	..	..	1
TOTALS	17	17	17	27
MEDIAN CASE	0.0	0.0	0.0	8.4

TABLE CLV

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO THE SENTENCE

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	3	8	1	2
0.1- 4.9	3	1	2	2
5.0- 9.9	5	1	5	10
10.0-19.9	5	1	7	8
20.0-29.9	1	1	2	4
30.0-39.9	..	4	..	1
40.0-49.9	..	1	..	..
TOTALS	17	17	17	27
MEDIAN CASE	7.8	3.4	10.2	9.7

TABLE CLVI

DISTRIBUTION OF HIGH SCHOOLS AND COLLEGES BY PERCENTAGES OF TEXTUAL CONTENT OF COURSES IN ENGLISH COMPOSITION DEVOTED TO EXPOSITION

PER CENT	HIGH SCHOOL YEARS			COLLEGE
	I–II	III–IV	I–IV	
0	8	11	4	6
0.1- 4.9	3	1	5	8
5.0- 9.9	5	1	6	8
10.0-19.9	1	1	2	4
20.0-29.9	..	1	..	1
30.0-39.9	..	..	..	..
40.0-49.9	..	1	..	..
50.0-59.9	..	1	..	..
TOTALS	17	17	17	27
MEDIAN CASE	3.6	0.0	3.9	4.4

Collateral and other readings of the courses.—Collateral readings on *rhetoric* are required in none of the high schools represented in this study. They are infrequently required in the courses for college freshmen. Three of the group of colleges represented prescribe the reading of Palmer's *Self-Cultivation in English,* and one requires Bates' *Talks on Writing.* Other than this, readings outside the texts used in the course are in other texts, and this requirement is uncommon. The type of additional reading,

when prescribed, is usually in the field of *literature,* approximately a dozen college instructors reporting requirements of this sort. In only a few instances is the information on this point sufficiently definite to permit computation of its extent. Sometimes this additional reading seems planned to supply literary models for use in the same manner as some of the materials reported as texts in Table CXLIII, but more often it appears to be literature for study or review in the same manner as for special courses in the field of English literature.

III. A Comparison of Quantitative Requirements

Extent of textual content.—It was found possible to compute the total textual content of the courses in English composition for almost all the high schools and colleges represented in this study. The medians and quartiles of these totals were next located and have been introduced into Table CLVII. This extent of content for college courses is seen to exceed that of the full high school courses, despite the larger number of clock hours assigned to the latter as shown in the first table of the chapter. The amounts for high school courses, however, are large enough, as far as mere space considerations are concerned, to comprehend most of what is introduced into college courses. If the college median is reduced by the median of approximately a half of the total content given over to models which do not often find a place in high school courses, the remaining textual content would not be far less in amount than that typical for high schools.

TABLE CLVII

Median and Quartile Total Equated Pages of Textual Content in High School and College Courses in English Composition

Measure of Tendency	High School	College
First quartile	452.1	604.4
Median case	621.0	841.0
Third quartile	783.4	1260.3

Pages of text studied per clock hour.—By means of a computation involving the numbers of clock hours in the courses of English composition reported upon earlier in the chapter and the totals of pages of textual content just referred to, the numbers of pages of textual content studied per clock hour of class time were ascertained. The median amount for all high school years is 3 pages, while that for college courses is more than three times as great, being 9.5 pages. The medians for the four high school years are, respectively, 2.9, 3.1, 0.0, and 0.0 pages. The disappearance of reading content for the median case in the last two years is explained by the rather frequent practice in these years of requiring work in composition without textual study.

In so far as textual content represents the courses in high school and college, it is clear that the requirements in the latter unit considerably exceed those in the former.

Writing requirements compared.—The blanks of inquiry asked also for the written and oral theme requirements of the courses. The information on the former aspect was supplied in such a form as to make possible the computation of the total amount of writing in number of words throughout each course. With information concerning the total number of clock hours devoted to composition available, it was a simple next step to the computation of the average number of words per clock hour represented by this writing requirement. The median and quartile measures of these amounts were then obtained for each year of the course and for all high school years and are presented in Table CLVIII. It shows that these writing requirements increase steadily from the first high school year to the third, make a spurt in the fourth, and manifest still another large increase by the freshman year in college. The increment during each of the last two years of the full five-year period is between 50 and 60 words. When all high school years are considered, the median college requirement per clock hour is about twice that of the median high school requirement.

TABLE CLVIII

MEDIAN AND QUARTILE NUMBERS OF WORDS PER CLOCK HOUR REPRESENTED BY THE WRITTEN THEME REQUIREMENTS IN HIGH SCHOOL AND COLLEGE COURSES IN ENGLISH COMPOSITION

MEASURE OF TENDENCY	HIGH SCHOOL YEARS					COLLEGE
	I	II	III	IV	All	
First quartile	34	47	42	58	41	136
Median	60	67	77	133	93	187
Third quartile	79	104	152	211	117	202

Requirements in oral composition.—The demands in the way of oral composition do not show quite as consistent a tendency to increase throughout the five-year period. The number of presentations per student and the length of each in minutes were secured. Assuming a moderate rate of presentation—100 words per minute—for all levels, the number of words per clock hour of all class time in composition was obtained for this portion of the work also. The medians for the four high school years were, respectively, 50, 83, 76, and 93. The median college requirement measured in this way was 15 words per clock hour. These figures mean that the constituent of oral composition increases as the student progresses through the high school, but practically disappears in the freshman college year. It is probably assumed in the college that training in this field is to be obtained in classes in public speaking.

IV. Summary and Significance

In so far as the method of study used in the comparison makes possible, it shows both similarities and differences in the courses in English composition in high school and college. Typically the high school offering extends over twice the number of clock hours of instruction as the college course, and, therefore, should be able to cover a wider range of content. The two more elementary divisions to which high school textual materials, especially in their lower years, devote larger proportions than do those assigned in colleges are grammar and letter-writing. The single subdivision to which college courses devote somewhat more space is narrative models. In other portions of the textual content—and this includes most subdivisions of the courses—the proportions of recognition are more nearly alike.

When the divisions are gathered into groups as follows, A, mechanics; B, diction; C, structure; D, forms of discourse; E, models; F, literary forms; and G, miscellaneous; the high school courses show tendencies to large excesses over college courses in A, C, and D, while college courses show a tendency to excesses only in E. If the constituent E is omitted and recomputations of percentages of remaining groups made, the differences are less marked, but the portions devoted to diction and miscellaneous in college courses notably exceed those in high school courses. In some respects the comparison on the basis omitting the constituent of models is more significant than the comparison with models included.

In the more purely quantitative relationships the college tend to exceed the high school courses. This is true for gross textual content, as well as the number of pages per clock hour of class meeting. It is true also of the extent of writing required. The exception is in the work of oral composition which the college courses seem to assume is cared for in the courses in public speaking.

However, while the tendency of difference is being emphasized, we should not lose sight of the fact that some high school courses will outdo some college courses. This statement applies both to nature and extent of content.

There is no intention to imply in the original presentation nor in this summary that there should be no similarity in high school and college courses in this field. Certain phases of composition are of such a character as to require repetition for the sake of fixation of habit. These are what may be referred to as the mechanical portions of the subject, but the whole process should be accomplished with coherence and consistent progress, a guiding principle which is doubtless violated in the present organization of secondary and higher education.

Nor is there any assumption that the method here used meets the requirements of an adequate comparison of courses in the two units of the system. Doubtless there are qualitative differences which the procedure here used is not competent to discover. The more selected character of the college student body and the typically superior training in his subject of the college teacher should result in certain insights not as frequently found in the lower unit, insights which actually constitute important qualitative characteristics. The textual content, likewise, also must contain qualitative differences that elude the type of analysis made.

However, even after all necessary admissions of distinction are made, the similarity of the work stands out as the essential finding of the study. If the work in the lower unit is on the secondary school level, the work in freshman composition is not far from it and no great injustice is done in regarding it as inherently secondary. It is, moreover, apparent that for many high school graduates there is likely to be a large amount of superfluous repetition, lack of sequence, or both, in taking the freshman college course. This conclusion has some special support in the fact that there is overlapping in the lists of textbooks used. There appears to be a need of standardization of content in the courses on both levels, a standardization worked out in co-operation by authorities responsible for the work in each field. The writer entertains little hope of such co-operation if we continue to give this work in two separate institutions with such infrequent contacts with each other as they now have. The development of logical progress through the five-year period devoted to composition with the avoidance of repetition which should accompany this progress, would be much more likely to result from bringing these courses into proximity where the inconsistencies, incoherences, and useless repetitions would become obvious enough to be eliminated. This would be accomplished by developing junior colleges in association with the upper years of our stronger high schools.

CHAPTER XXXI

OVERLAPPING IN ELEMENTARY FRENCH

I. Preliminary Considerations

Distribution of institutions represented.—In order to compare the courses in elementary French, appeal was made to heads of departments in high schools in a random selection of cities of 10,000 or over in states of the Middle West and in standard colleges and universities for the most part in the same territory. Prompted by a suspicion that the proportionate response might turn out too small to afford significant findings, a small number of colleges somewhat outside the territory represented by the high schools were included in the list to which copies of the blank of inquiry were sent. This fact will account for the presence of a college in Colorado and another in Idaho in the representation by states to be reported.

The high schools from which usable responses came are distributed among the following states: Illinois, 16 schools; Iowa, 9; Minnesota, 5; South Dakota, 1; and Wisconsin, 11. The colleges were in the following: Colorado, 1; Idaho, 1; Illinois, 6; Indiana, 4; Iowa, 5; Kansas, 4; Michigan, 3; Minnesota, 3; Nebraska, 2; North Dakota, 1; Ohio, 2; Oklahoma, 1; South Dakota, 2; and Wisconsin, 1. While in most of the chapters dealing with overlapping, the colleges, because there are fewer of them as a whole than of high schools, are more widely representative, the restriction of the responses from lower units is especially remarkable, being limited to five—in fact, almost to four—states. This is not owing to the geographic distribution of cities to which questionnaires were sent as much as to the factor of chance in proportionate response from within the several states.

The courses represented.—High school department heads were asked to provide data concerning the first and second years of the offering in French, and college department heads for the work of the first two semesters. On account of the common assumption that it requires two years of high school work in the field to equal a year of the college course, it was deemed desirable to secure data that would make comparisons possible between either or both high school years with either or both semesters. The high school teachers co-operating were, therefore, asked to report for each year separately and college teachers for each semester separately.

Time devoted to the work.—To afford a comparison of the amount of class time devoted to the high school and college courses the distributions of schools and colleges by total numbers of clock hours was prepared and

are presented in Table CLIX. The amount for each institution was ascertained by introducing into the computation the length of period reported, the number of meetings per week, and the number of weeks in the division, that is, semester or year, of the course.

TABLE CLIX

DISTRIBUTION OF FORTY-TWO HIGH SCHOOLS AND THIRTY-SIX COLLEGES AS TO TOTAL NUMBERS OF CLOCK HOURS DEVOTED TO ELEMENTARY FRENCH

CLOCK HOURS	HIGH SCHOOL		COLLEGE	
	One Year	Two Years	One Semester	One Year
20- 39	1	..	..	..
40- 59	..	1	5	..
60- 79	..	..	26	..
80- 99	..	..	5	5
100-119	1	..	..	..
120-139	18	..	..	18
140-159	16	..	..	9
160-179	4	..	..	4
180-199	2	..	..	..
200-219	..	..	..	..
220-239	..	1	..	..
240-259	..	10	..	..
260-279	..	8	..	..
280-299	..	6	..	..
300-319	..	10	..	..
320-339	..	1	..	..
340-359	..	3	..	..
360-379	..	2	..	..
MEDIANS	141.25	283.3	70.0	134.4

As is to be expected, most high school courses during a single year range between 120 and 160 clock hours. The median amount of class time is 141.25 clock hours. The distribution for the first semester of the college course is not even as wide, while the median amount of time is very nearly a half of that just cited for the high school. Distributions and medians for the two years of high school and the full year of college French show an analogous difference, while the figures for the one-year course in both units are not widely different, the high school course tending to extend over at least an appreciably larger number of clock hours.

II. THE NATURE OF THE CONTENT OF THE COURSES

The textbooks used.—Before presenting the results of the analysis of the courses represented in this study it is desirable to report the lists of texts and readings used. The textbooks reported twice or oftener are to

be found in Table CLX, with their frequency of appearance in high school and college. In addition to the titles listed, there were nine which were reported only once each, eight of these being used in high schools and only one in college. Examination of the table will show that of the twenty-three titles listed thirteen are in use in both institutions, and that of the remaining ten, eight were in use in high school only and two in college only. For the four volumes reported with much greater frequency than others, viz., Cerf and Giese, Chardenal (both editions), and two editions of Fraser and Squair, it is apparent that, although there is some community of use in courses on the two levels, there is predominance of use for one or the other level only. For instance, the first text named is predominantly used in high school. The generalization on textbooks is, that, although there is some tendency when judged by predominance of use, to distinguish the volumes as high school or as college texts, there is no clear-cut line of demarcation between the two levels in this respect.

TABLE CLX

FREQUENCY OF USE IN FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES IN FRENCH OF ALL VOLUMES REPORTED AS TEXTBOOKS BY TWO OR MORE INSTITUTIONS

AUTHOR AND TITLE	HIGH SCHOOL	COLLEGE
Aldrich and Foster, Elementary French	2	2
Allen and Schoell, First French Composition	2	..
Brooks, Chardenal's Complete French Course	15	..
Cerf and Giese, Beginning French	10	3
Chardenal, Complete French Course	15	3
Comfort, Exercises in French Prose Composition	2	..
De Sauzé, Cours Pratique pour Commençants	1	2
Dubrule, Français pour Tous	1	1
Fontaine, Nouveau Cours français	2	..
François, Beginner's French	..	2
François, Introductory French Prose Composition	2	1
Fraser and Squair, Elementary French	5	2
Fraser and Squair, French Grammar	5	20
Fraser and Squair, New Complete French Grammar	3	27
Fraser and Squair, Shorter French Course	4	4
Levi, French Composition	2	..
Méras, Premier Livre	8	..
Méras, Second Livre	7	..
Moore and Allin, Elements of French	2	2
Olmsted, First Course in French	2	2
Rosenthal and Chankin, Grammar de Conversation et de Lecture	2	..
Thienne and Effinger, French Grammar	1	2
Wilkins, Nitze, and Parmenter, Handbook of French Phonetics	..	2

The readings.—Only the readings which are reported a total of four times or oftener for both high school and college courses are listed in Table CLXI. Of the 22 titles to be found here 19 are read in both high school and college and 3 in high school only. In this list of materials most frequently read there is only one title, Smith and Greenleaf, which is read with much greater frequency in college than in high school, all others read with any large frequency being predominantly parts of high school courses. This is in accord with a fact to be demonstrated at a later point, the larger proportionate amount of reading in the courses in the lower unit. Of the 51 titles appearing once to three times each, 35 are read in high school only, 11 in college only, and 5 in courses in both units. The total frequency of reported readings for the 42 high school courses is 202, which is slightly less than 5 titles per course, while that for the 36 college courses is 99, which is somewhat less than 3 titles per course. As with the textbooks, there appears to be nothing approaching a real line of demarcation between materials regarded as appropriate for courses on either level, there being considerable community of reading content.

TABLE CLXI

FREQUENCY OF USE IN FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES OF ALL VOLUMES REPORTED AS READINGS BY FOUR OR MORE INSTITUTIONS

AUTHOR AND TITLE	HIGH SCHOOL	COLLEGE
Aldrich and Foster, French Reader	2	3
Ballard, Short Stories for Oral French	4	..
Bierman and Frank, Conversational French Reader	2	4
Brandon, Dumas' La Tulipe Noire	6	..
Castegnier, Labiche and Martin's Voyage de M. Perrichon	24	17
De Monvert, La Belle France	10	3
Fontaine, Erckman-Chatrian's Madame Therese	3	1
François, Daudet's Neuf Contes Choisis	5	2
François, Easy French Reading	6	1
Guerber, Contes et Légendes	5	3
Lavisse, Histoire de France	2	5
Logie, Halevy's L'Abbé Constantin	14	3
Méras and Roth, Petits Contes de France	14	..
Olmsted and Barton, Elementary French Reader	1	6
Randall-Lawton, Sand's La Mare au Diable	4	1
Roux, Elementary French Reader	3	1
Smith and Greenleaf, French Reader	3	13
Spiers, Malot's Sans Famille	13	1
Super, Daudet's Le Petit Chose	2	3
Talbot, Le Français et Sa Patrie	6	6
Wells, Labiche et Martin's La Poudre aux Yeux	13	1
Williamson, Mérimée's Colomba	6	3

The method of analysis.—The procedure in analysis of these texts and readings will next be briefly described. After some preliminary examination of the former, a main outline of six major divisions was decided upon. These are mechanics, grammar, reading, conversation, composition, and vocabulary. The subdivision of *mechanics* includes phonetics, elision, accent, punctuation, etc. These concern the acts of speaking and writing the language. *Grammar* consists of the parts of speech and the rules governing them, declensions, conjugations, sentence structure, etc. *Reading* includes the material in French assigned for translation, both inside and outside the textbook used. *Conversation* consists of the questions presuming answers in French, as well as all direct exercises; *composition,* all English-to-French exercises, themes in French, etc.; and *vocabulary,* only those lists of words given in the body of the text or reading and not long vocabularies for reference in the last portions of volumes.

All original measurements of space were made in pages and tenths of pages, a scale for this purpose being prepared for each length of page found. Before final utilization of the amounts resulting from these measurements they were reduced to the same basis by means of multiplication of the original measure by the ratio of the number of words per page in the volume measured to the number in the volume used as the basis of comparison. The text used as this basis was Fraser and Squair's *French Grammar,* one of those found to be in frequent use.

All presentations of results to be made *concern the courses and not the volumes* analyzed. This was possible because those who co-operated were asked to indicate the portions omitted. The analyses of the volumes were merely a means to the analysis of the courses.

The distribution of content to the main divisions.—The results of the analysis of the content of the courses represented are to be seen in Table CLXII and Figure 85. In the left-hand half of the former are given the numbers of equated pages in each of the main divisions for each half and for all of the high school and college courses in elementary French as defined for the purposes of this study. The figure assists in making necessary desirable comparisons for the first year of high school French, the first two years of the high school course, and the first year of the college course. The right-hand half of the table transmutes the data in the first half into percentages. The comparisons of amounts show that during the first year the high school courses cover less content than do college courses. The differences are especially notable for grammar, reading, and composition, amounts being more nearly equivalent in the remaining divisions. The content covered during two years of high school and one year of college work is more nearly equal. In fact, the medians of total amounts given at the foot of the table indicate that, as far as gross amounts are concerned, the high school in two years covers somewhat more content than does the college in a single year. First year French in high school bears about the same proportionate relationship as first semester college French.

TABLE CLXII

MEDIAN NUMBERS OF EQUATED PAGES AND PERCENTAGES OF HIGH SCHOOL AND COLLEGE COURSES IN ELEMENTARY FRENCH DEVOTED TO EACH DIVISION OF THE CONTENT

DIVISIONS	EQUATED PAGES						PER CENT					
	HIGH SCHOOL			COLLEGE			HIGH SCHOOL			COLLEGE		
	First year	Second year	Two years	First semester	Second semester	First year	First year	Second year	Two years	First semester	Second semester	First year
1. Mechanics	9.7	1.3	11.2	11.1	1.1	11.3	4.4	0.7	1.9	5.6	0.6	2.2
2. Grammar	19.0	68.8	108.3	36.5	120.0	203.3	21.4	16.6	19.0	23.0	33.5	32.5
3. Reading	91.6	250.0	342.9	60.0	122.2	183.3	47.0	66.3	60.7	29.0	41.1	38.8
4. Conversation	25.0	13.8	35.0	18.0	16.4	40.0	11.0	3.4	6.0	11.6	5.2	8.3
5. Composition	24.5	32.0	56.0	27.5	41.7	83.0	10.7	9.0	10.0	15.0	13.4	14.7
6. Vocabulary	8.7	4.4	14.6	9.0	4.7	14.0	4.4	1.4	2.4	4.5	2.2	3.2
MEDIANS OF THE TOTALS	212.5	371.4	550.0	194.4	316.0	510.0	...	...	...	...	...	...

The essential difference between elementary French in high school and college as shown by these medians is the much larger amount of reading in high school which is compensated for by a much greater emphasis on grammatical content in the college.

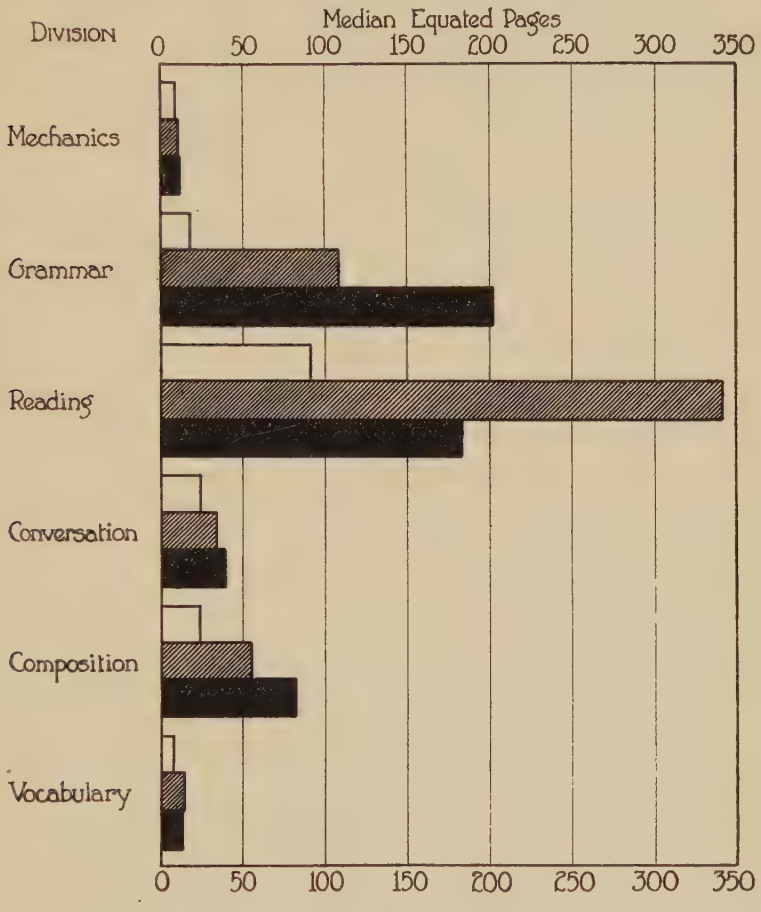

Figure 85

Median numbers of equated pages of content devoted to the several divisions of courses in elementary French in 42 high schools and 36 colleges (in outline, first year of the high school course; shaded, two years of high school course; black, one year of the college course)

The textual and reading content compared.—The preceding paragraph suggests the desirability of comparing the textual and reading content in the courses represented. For this comparison all French reading, whether within or without the textbook, has been lumped, whereas "text" here means all remaining divisions of the courses, viz., mechanics, grammar, conversation, composition, and vocabulary. Both the distributions and the

medians (Table CLXIII) show larger proportions of text and smaller proportions of reading for the college courses. The median figures for the high school show approximately two fifths of text and three fifths of reading, whereas for the colleges the proportions are reversed. It should nevertheless be noted that the percentages of text for a large proportion of high schools exceed or equal those for a large percentage of colleges, and, conversely, that the percentages of reading for a considerable number of colleges exceed or equal those for some high schools.

TABLE CLXIII

DISTRIBUTION OF FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES IN ELEMENTARY FRENCH AS TO PERCENTAGES TEXTS AND READINGS ARE OF THE TOTAL CONTENT COVERED

PER CENT	HIGH SCHOOL		COLLEGE	
	Text	Reading	Text	Reading
0.0- 9.9	..	..	..	1
10.0- 19.9	..	..	..	2
20.0- 29.9	8	1	..	7
30.0- 39.9	14	2	3	9
40.0- 49.9	11	6	5	9
50.0- 59.9	6	11	9	5
60.0- 69.9	2	14	9	3
70.0- 79.9	1	8	7	..
80.0- 89.9	..	..	2	..
90.0- 99.9	..	..	1	..
MEDIANS	39.3	60.7	61.1	38.8

Comparing the grammar constituents.—The distribution of amounts of the content of the courses in elementary French devoted to the large divisions of Table CLXII will be illustrated for two major constituents, grammar and composition. The distribution of courses by numbers of equated pages in the former division is presented in Table CLXIV. The trend bears out the expectations of the medians, since the distribution for the college is somewhat more in the direction of the larger amounts. There are high school courses, however, with just as large or larger amounts in this division than are shown for some of the college courses. As a whole it is clear that colleges emphasize grammar more than do the high schools.

Comparing the composition constituents.—The percentages devoted to composition, as seen in Table CLXV, are much nearer equality than are those for the division just dealt with. Colleges, however, stress this aspect somewhat more than high schools, and this is true of each or both halves of the courses.

TABLE CLXIV

DISTRIBUTION OF FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES IN ELEMENTARY FRENCH BY THE NUMBERS OF EQUATED PAGES DEVOTED TO GRAMMAR

EQUATED PAGES	HIGH SCHOOL			COLLEGE		
	First Year	Second Year	Two Years	First Semester	Second Semester	One Year
0.0- 19.9	2	9	..	4	5	..
20.0- 39.9	20	4	4	17	6	3
40.0- 59.9	14	4	4	6	3	3
60.0- 79.9	5	9	5	2	1	3
80.0- 99.9	..	9	3	..	1	2
100.0-119.9	1	1	12	4	2	2
120.0-139.9	..	..	3	2	2	2
140.0-159.9	..	..	4	..	1	1
160.0-179.9	..	1	1	1	1	..
180.0-199.9	..	2	..	..	9	1
200.0-219.9	..	2	1	..	5	6
220.0-239.9	..	..	3	..	..	7
240.0-259.9	..	1	..	..	..	5
260.0-279.9	..	..	1	..	..	..
340.0-359.9	..	..	..	..	..	1
460.0-479.9	..	..	1	..	..	..
MEDIANS	19.0	68.8	108.3	36.5	120.0	203.3

TABLE CLXV

DISTRIBUTION OF FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES IN ELEMENTARY FRENCH BY THE NUMBERS OF EQUATED PAGES OF COMPOSITION

EQUATED PAGES	HIGH SCHOOL			COLLEGE		
	First Year	Second Year	Two Years	First Semester	Second Semester	One Year
0.0- 9.9	2	6	1	3	4	1
10.0- 19.9	14	6	2	6	4	1
20.0- 29.9	11	7	3	12	7	3
30.0- 39.9	9	10	2	3	2	1
40.0- 49.9	4	4	9	10	6	5
50.0- 59.9	1	5	8	1	5	4
60.0- 69.9	1	2	7	1	2	1
70.0- 79.9	..	1	2	..	4	..
80.0- 89.9	..	1	3	..	..	7
90.0- 99.9	..	..	1	..	1	7
100.0-109.9	..	..	2	..	1	3
110.0-119.9	..	..	2	..	..	1
120.0-129.9	..	..	..	..	..	1
130.0-139.9	..	..	..	..	..	1
MEDIANS	24.5	32.0	56.0	27.5	41.7	83.0

Further qualitative comparison.—Up to this point two essential differences have been found between the high school and college courses in elementary French. The first of these is the much larger total amount of material covered in the college courses during the same period. The second concerns the larger amount of grammar and smaller reading content in college courses. With the aim of ascertaining at least an approximate judgment of the relative difficulty of the materials an average rank for all text and readings reported for each half of each elementary course was computed. The original rank assigned to each volume used in the courses was made without consideration of whether it was used in high school or college courses. All ranks were given by the same person, who was a graduate student in French who had majored in the subject as an undergraduate, and who was familiar with the materials represented. The ranking was done on a five-step scale ranging from 1, very easy, to 5, very difficult. Judgments were, of course, relative and not absolute, and are without doubt limited in value by subjective qualifications. The average ranks obtained for the courses are distributed in Table CLXVI, where are given also the median ranks for each half of high school and college courses. Both distributions and medians show a difference of difficulty of materials studied in favor of the college courses, but the difference is not marked. Despite the crudeness of the method of scaling, it can scarcely be doubted that, if large differences of difficulty had been the tendency, they would have made themselves felt in the results of the tabulation, although small differences could not well be detected. The judgment of little difference has the support of the large number of textual and reading titles used in common by high schools and colleges as already shown.

TABLE CLXVI

DISTRIBUTION OF AVERAGE RANKINGS OF DIFFICULTY OF CONTENT IN FORTY-TWO HIGH SCHOOL AND THIRTY-SIX COLLEGE COURSES IN ELEMENTARY FRENCH

RANKINGS	HIGH SCHOOL		COLLEGE	
	First Year	Second Year	First Semester	Second Semester
1.0-1.9	13	1	2	1
2.0-2.9	26	24	25	20
3.0-3.9	2	17	9	15
4.0-4.9	1	..	..	..
MEDIANS	2.3	2.8	2.6	2.9

III. Quantitative Differences in the Courses

Number of pages per clock hour of instruction.—The differences between high school and college courses in the more purely quantitative aspect of the amounts of their textual and reading materials have already been foreshadowed in foregoing portions of the chapter. The median numbers of clock hours of instruction for each half of the high school courses have been seen (Table CLIX) to be slightly more than double those for the college courses. The medians of total amounts of text and readings for the same parts of high school and college courses, however, have been seen (Table CLXII) to be roughly equivalent, with the former somewhat in excess of the latter. We have, therefore, no occasion for surprise that the data of Table CLXVII show larger numbers of pages of text and readings per clock hour of instruction for college than for high school courses. The differences are notable; but they do not rise to double the amount which is required by the assumption that it takes two high school units to equal one year of foreign language in college. The assumption is made somewhat more untenable by the fact shown in the distribution, that the requirements of some high school courses are in excess of those of some college courses.

TABLE CLXVII

Distribution of Forty-Two High School and Thirty-Six College Courses in Elementary French As to the Number of Pages of Text and Readings per Clock Hour of Instruction

Equated Pages	High School			College		
	First Year	Second Year	Two Years	First Semester	Second Semester	One Year
0.0- 0.9	5	..	..	..	..	..
1.0- 1.9	28	12	19	6	4	4
2.0- 2.9	5	13	13	14	6	5
3.0- 3.9	3	10	8	11	4	12
4.0- 4.9	..	5	..	2	6	8
5.0- 5.9	..	..	1	2	5	4
6.0- 6.9	..	..	..	..	5	2
7.0- 7.9	1	1	..	1	4	..
8.0- 8.9	..	..	1	..	..	1
9.0- 9.9	..	..	..	..	..	..
10.0-10.9	..	1	..	..	2	..
Medians	1.6	2.7	2.2	2.9	4.7	3.8

IV. Opinions As to Differences between High School and College Courses

Opinions of high school department heads.—A wide variety of response was made to a request for opinons as to differences now *obtaining* between

high school and college courses in elementary French. Out of this variety emerge two beliefs posited with somewhat greater frequency than others by high school teachers—the first, that the college course contains *more* materials than does the high school course, and the second, that there is less emphasis upon grammar. A smaller proportion refer to the high school course as "more elementary," but do not specify in what respects. The differences that *should* exist as suggested by these department heads for the most part lend corroboration to those believed to exist. These opinions afford an interesting parallelism with the chief differences already shown between the high school and college courses represented in this study.

Opinions of college department heads.—The general tenor of responses made by college instructors to this request is not widely different than for high school department heads. The chief difference is a somewhat greater confusion of opinion that makes it a bit more difficult to discern tendencies. However, the trend here is also to believe that more materials are covered in the courses in the upper unit, with more emphasis on the grammar constituent. Two additional opinions show a tendency to emerge, viz., that there is less emphasis on conversation and phonetics, and, in accordance with the chronic disparagement of high school work in college circles, that the work in the lower unit is "not as thorough." The chief differences that should obtain, in the minds of those responding, are most of those already cited. An appreciable number carry the conviction that all elementary work should be relegated to the high school, the college restricting itself to the giving of advanced work only.

V. Epitome and Conclusion

Summary.—This analytic comparison of forty-two high school and thirty-six college courses in elementary French shows that (a), while some of the former cover as much content as some of the latter, the measures of central tendency indicate that the latter do not fall far short of covering the same extent of content in half the time. (b) The major internal differences are the larger total and proportionate extent of grammar content and smaller extent of reading content in the college courses. Other differences of content appear, but they are less notable. (c) A judgment of difficulty, concerned only with the character of the content and not its quantity, does not find the materials of these elementary courses in institutions of the two levels represented far apart. This judgment has the corroboration of a rather large extent of community of use in high school and college of identical texts and readings. (d) The facts of similarity and difference as found are rather closely paralleled by the opinions of high school and college department heads.

The meaning.—In this field we have an illustration of one sort of overlapping primarily, that in which the college gives essentially the same work as does the high school, but in which, on account of the recognition in the upper unit of what is done in the lower, there would be relatively little of actual repetition for the individual student. To be sure, students might enter certain of the colleges represented after being graduated from certain of the high schools and, by continuing work in French, be obliged to repeat materials already covered in the unit below. But the findings of the study argue against the conclusion of a marked tendency in this direction. The outstanding conclusion is that, because the work is so nearly alike in high school and college, that in the upper unit is secondary in character. The chief difference found, that of quantity, does not afford a weighty argument against this conclusion. One may be moved to admit that the greater extent of selection of students, their greater maturity, and the better training in their subject of instructors in college would make for some extent of qualitative difference, but no great distinction in this respect can be achieved on account of the sheer extent of ground to be covered.

While admitting that typically the college course covers twice the same ground as the high school course, we should not forget that the extent of content covered in an equal period of time in some high schools equals and even occasionally exceeds that in some colleges. This is at least a partial argument for bringing these courses which should articulate in closer proximity through a junior college reorganization which is in the nature of an upward extension of the high school.

CHAPTER XXXII

OVERLAPPING IN HIGH SCHOOL AND COLLEGE ALGEBRA

I. Preliminary Considerations

The courses which have been analyzed and compared.—The courses in this field to be compared in the current chapter are (a) those in the high school usually bearing the name "higher algebra" or "advanced algebra" and being the third semester of algebra for students in secondary schools, and (b) those offered in college and usually designated as "college algebra." Although the former is now frequently given in college in the territory represented and the latter occasionally finds a place in the last year of the high school, no such courses have been included in the study. In other words, it may be said that it is third and fourth semester courses in algebra which are being analyzed and compared, the former almost universally being prescribed as a prerequisite to the latter, and the former being given in high schools and the latter in colleges.

Geographic distribution of the institutions represented.—Thirty-two high school and 35 college courses are represented in the data utilized in the current chapter. The former are distributed to 6 states as follows: Illinois, 9; Iowa, 8; Minnesota, 5; North Dakota, 2; South Dakota, 2; and Wisconsin, 6. Only high schools in communities with populations of 10,000 and over were included in the study. The colleges are more widely distributed, being found in 13 states, 8 of which have no representatives in the high school list. The distribution by states is as follows: Colorado, 2; Illinois, 4; Indiana, 2; Iowa, 3; Kansas, 3; Michigan, 3; Missouri, 4; Nebraska, 3; North Dakota, 1; Ohio, 7; Oklahoma, 1; South Dakota, 1; and Wisconsin, 1.

Duration of the courses.—Without exception the high school courses extend through a semester of 18 to 20 weeks. Almost all the college courses extend only through a single semester, although 3 are longer and 3 are shorter. Two of the longer courses extend over a full school year, but have fewer meetings each week, while 2 of the shorter courses extend over only a single term or quarter of 12 weeks.

A better comparison of the amounts of class time in the two groups of courses is afforded in Table CLXVIII which shows their distribution by numbers of clock hours devoted to class work. The distributions of courses show a larger amount of time devoted to high school than to college courses, a difference that is reflected in the medians at the foot of the table. These medians show over twenty more clock hours of class time in courses in higher algebra than in courses in college algebra.

TABLE CLXVIII

DISTRIBUTION OF THIRTY-TWO HIGH SCHOOL AND THIRTY-FIVE COLLEGE COURSES IN ALGEBRA BY NUMBERS OF CLOCK HOURS OF CLASS TIME

NUMBER OF CLOCK HOURS	HIGH SCHOOL	COLLEGES
11– 15	..	1
16– 20	..	..
21– 25	..	..
26– 30	..	..
31– 35	..	..
36– 40	..	2
41– 45	..	10
46– 50	..	10
51– 55	..	3
56– 60	4	1
61– 65	4	..
66– 70	6	4
71– 75	11	1
76– 80	2	1
81– 85	..	2
86– 90	1	..
91– 95	3	..
96–100	1	..
TOTALS	32	35
MEDIAN	71.3	49.5

The classification of students taking the courses.—The predominant classification of students taking the courses in higher algebra are reported as juniors, 13 high schools; seniors, 4; juniors and seniors, 14; and sophomores, juniors, and seniors, 1. The courses seem to be almost exclusively for high school juniors and seniors. The predominant classification of students of college algebra is freshmen in 32 of the 35 colleges, freshmen and sophomores in 2, and freshmen, sophomores, and juniors in a single college. Thus, those who take the two courses here being considered are predominantly in succeeding school years or, at most, two school years apart.

II. COMPARISON OF THE AMOUNT AND CHARACTER OF THE CONTENT

The textbooks used.—The textbooks reported and their frequency of use in the courses represented are shown in Tables CLXIX and CLXX, the former giving these facts concerning the high school, the latter those concerning the college courses. An examination of these two tables results in two major observations, the first being that, although a number of authors and titles are represented, there is a predominance of use of a single text in each group of courses; the second is, that there is no common use of any single text in the courses on both levels.

TABLE CLXIX

FREQUENCY OF USE OF CERTAIN TEXTBOOKS IN THE THIRTY-TWO COURSES IN HIGHER ALGEBRA ANALYZED

AUTHOR AND TITLE	NUMBER OF SCHOOLS
Collins, Practical Algebra	1
Hawkes, Luby, and Touton, Second Course	17
Milne, Second Course	2
Rietz, Crathorne, and Taylor, School Algebra, Second Course	1
Slaught and Lennes, First Principles, Second Course	1
Slaught and Lennes, Intermediate Algebra	2
Wells and Hart, Second Course	7
Wentworth-Smith, Book II	1
TOTAL	32

TABLE CLXX

FREQUENCY OF USE OF CERTAIN TEXTBOOKS IN THE THIRTY-FIVE COURSES IN COLLEGE ALGEBRA ANALYZED

AUTHOR AND TITLE	NUMBER OF COLLEGES
Brenke, Advanced Algebra	2
Collins, Advanced Algebra	1
Fite, College Algebra	4
Hawkes, Advanced Algebra	2
Hawkes, Higher Algebra	2
Merrill and Smith, First Course in Higher Algebra	2
Rietz and Crathorne, College Algebra	17
Skinner, College Algebra	3
Wentworth, College Algebra	2
TOTAL	35

Courses and not textbooks are being compared.—The procedure for this chapter was the analysis of the courses represented, rather than of textbooks merely. Naturally, this was achieved through an analysis of the texts reported, or at least such portions of them as were being covered by the classes taking the courses. In order to be able to make this analysis of courses those who supplied information concerning them were requested to indicate by pages all omissions from the textbooks used and all additions from other sources. It was found that modifications of the former sort are much more often made than of the latter.

Seven of the high school courses make no omissions from the textbooks reported. The remainder make omissions ranging from parts of a single

chapter to more significant proportions of the total content. In some instances the omissions are of materials covered in other courses, as ratio and proportion, which is frequently treated in the course in plane geometry. In only six instances did it appear that really significant additions were being made from other sources.

The proportionate extent of deviation from the content of textbooks for courses in college algebra is very similar to that in higher algebra, a large majority making omissions ranging widely in amount from parts of a single chapter to several chapters. In only a single instance did there appear to be important additions to the content of the texts used.

Owing to the fact that what is subsequently reported is the analysis of courses and not of textbooks merely, all the modifications just referred to are reflected in the tables presented.

TABLE CLXXI

TOTAL NUMBERS OF EQUATED PAGES OF THEORY IN THE COURSES IN HIGHER ALGEBRA AND COLLEGE ALGEBRA

TOTAL PAGES	HIGH SCHOOLS	COLLEGES
50.1- 60.0	1	1
60.1- 70.0	2	2
70.1- 80.0	1	1
80.1- 90.0	6	1
90.1-100.0	4	1
100.1-110.0	12	3
110.1-120.0	1	2
120.1-130.0	3	3
130.1-140.0	..	3
140.1-150.0	..	4
150.1-160.0	..	3
160.1-170.0	..	1
170.1-180.0	..	4
180.1-190.0	..	1
190.1-200.0	..	1
200.1-210.0	1	2
210.1-220.0	1	..
220.1-230.0	..	1
270.1-280.0	..	1
TOTALS	32	35
MEDIAN	112.2	140.4
AVERAGE	130.0	141.3

The totals of theory, exercises, and problems.—Something of the extent of similarities and differences of the courses in algebra on the two levels represented is shown in Tables CLXXI, CLXXII, and CLXXIII. For the purposes of these tables all the content of each course was distributed to three main divisions, viz., theory, exercises, and problems. The difference between the second and third divisions will be apparent without further explanation than that under problems have been classed all verbal exercises. The term "theory" does not accurately describe all that has been included under that head, since here has been classified all course content not classifiable as exercises and problems. The justification of the term used is the fact that the chief constituent of this division is theory.

TABLE CLXXII

TOTAL NUMBERS OF EXERCISES IN THE COURSES IN HIGHER ALGEBRA AND COLLEGE ALGEBRA

TOTAL NUMBER	HIGH SCHOOLS	COLLEGES
201- 400	..	1
401- 600	..	1
601- 800	..	6
801-1000	..	4
1001-1200	..	7
1201-1400	..	8
1401-1600	1	6
1601-1800	2	..
1801-2000	1	2
2001-2200	5	..
2201-2400	5	..
2401-2600	4	..
2601-2800	2	..
2801-3000	8	..
3001-3200	2	..
3201-3400	1	..
4001-4200	1	..
TOTALS	32	35
MEDIAN	2485.5	1111
AVERAGE	2531.8	1112.9

The theoretical content has been computed in terms of the numbers of equated pages in each course. Table CLXXI contains the distribution of the high school and college courses when measured in this way. It shows in both the distributions and the medians and averages at the foot a considerably larger amount of material of this type for the courses in college algebra.

TABLE CLXXIII

TOTAL NUMBERS OF PROBLEMS IN THE COURSES IN HIGHER ALGEBRA AND COLLEGE ALGEBRA

TOTAL NUMBER	HIGH SCHOOLS	COLLEGES
41- 60	..	2
61- 80	..	1
81-100	..	..
101-120	..	4
121-140	..	2
141-160	5	3
161-180	1	2
181-200	2	6
201-220	2	3
221-240	1	11
241-260	1	..
261-280	2	..
281-300	2	..
301-320	3	..
321-340	10	1
441-460	1	..
461-480	2	..
TOTALS	32	35
MEDIAN	302	194
AVERAGE	278.3	180.4

This distinction is notably reversed in Tables CLXXII and CLXXIII. The distributions in the former table overlap scarcely at all, and the median and average numbers of exercises in the courses in higher algebra are more than double those in the courses in college algebra. The difference is not as marked for the problems, but it is nevertheless large.

We can conclude from the data of these tables that the theoretical content in the high school courses represented is considerably less than for the college courses, while at the same time, the training through exercises and problems is proportionately a much larger constituent. There is no intention at this point, of course, to draw inferences concerning the relative difficulty of the courses, as sheer *numbers* of problems could not be indicative of differences in this respect.

Average amounts and proportions devoted to each topic.—A much better basis of comparison both quantitatively and qualitatively of the two groups of courses represented is afforded by Table CLXXIV, which gives the amounts and percentages of recognition in each of the three divisions named, i.e., theory, exercises and problems, of each of the topics treated, e.g., fundamental operations, detached coefficients, special products, etc. This table is to be read as follows: the average of the numbers of equated pages devoted to theory of fundamental operations in the courses in higher algebra in high school is 4.59, while the average of the percentages of the courses devoted to this topic in this division is 4.5; the average of the equated pages of theory in the same topic in the courses in college algebra is 7.86, while the average of the percentages is 5.6; the average number of exercises in the fundamental operations in the courses in higher algebra is 138.4, while the average of the percentages of these exercises is 5.4, etc.

The chief significances of this table can be ascertained by comparing for each division the pair of columns for high schools with the pair for colleges. In making this comparison one soon discovers certain similarities and differences. For example, the average numbers of pages of *theory* in the fundamental operations in the high school and college courses are, respectively, 4.59 and 7.86, and the averages of the percentages are 4.5 and 5.6. The courses, thus, do not differ widely on this score. In glancing down the columns, one finds that factoring is the first important topic in which there is a large difference in average amount and average per cent, and here the difference is in favor of the courses in higher algebra. Other instances of marked high school excesses are special products, fractions, linear equations, radicals, quadratic equations, quadratic systems, irrational equations, ratio and proportion, variation, and square root. The instances of notable college excesses are inequalities, limits and infinity, permutations, combinations, probability, determinants, mathematical induction, and synthetic division. For the most part these respective excesses constitute the primary distinctions of content of the courses on the two levels. The sums of the averages of the percentages of the group of 11 major topics in which there are high school excesses are 45.4 for higher and 13.4 for college algebra, a difference equivalent to approximately a third of the lower course. Corresponding sums for the 8 major topics in which there are college excesses are 3.0 and 18.0 per cent. At the same time the 11 major topics in which the percentages are more nearly equal are 47.1 and 40.1. Although the method of computation does not make these sums of percentages exactly comparable, the facts just cited do indicate a large amount of overlapping in these theoretical portions. On the other hand, it also becomes apparent that the college course makes some notable advances on the ground covered by the high school course.

The more marked high school excesses in the columns giving the averages of the percentages of *exercises* are in the following topics: fundamental operations, special products, factoring, fractions, linear equations, exponents, radicals, and square root. Six of these are identical with those in which there are excesses of theory. The percentage totals for the two groups of courses are, respectively, 56.6 and 22.7. The college excesses in the percentages of exercises are in inequalities, functions and their graphs, solution of equations by graphs, graphical representation of complex numbers, and determinants. The percentage totals here are 4.0 and 18.8, respectively. The topics in which there are approximately equal percentages in the high school and college courses represented are: linear systems, quadratic equations, equations in quadratic form, irrational equations, imaginaries, theory of quadratics, progressions, the binomial theorem, and logarithms. These are in the majority of cases identical with topics in which there are equal portions of theory and include totally about a third of the courses on each of the two levels. There are, however, important shifts of topics in which excesses obtain, so that, while there is a tendency to consistency in differentiating the courses on the two levels, there is a counteracting tendency to similarity of emphasis. It is pertinent to recall that equal percentages in this division of the work of the courses signify more than twice the number of exercises in higher algebra than in college algebra.

Since they constitute, as compared with theory and exercises, a relatively minor portion of the courses in higher algebra and college algebra, similarities and differences in numbers of *problems* cannot affect conclusions from a study of the two groups of courses as vitally as do these facts for the two divisions first named. At the same time the amounts and percentages seen in Table CLXXIV to be devoted to them have some significance and are, therefore, deserving of at least brief consideration. Notable high school excesses are to be found in special products, linear equations, linear systems, radicals, quadratic systems, ratio and proportion, and square root. All but one of these topics are to be found in the list in which there are high school excesses in theory. College excesses are to be found in exponents, functions and their graphs, theory of quadratic equations, progressions, binomial theorem, variation, logarithms, permutations, combinations, and probability. Six of these topics are to be found in the list of those in which there are approximately equal percentages of theory in high school and college courses, three in the list of those with college excesses, and one only in the list in which there are high school excesses. To some extent, therefore, the data on problems are in harmony with those on theory and exercises, first, by showing some tendency to consistency of proportionate recognition of the topics throughout, and second, by showing some tendency also to a shift of proportions that results in enlarging the average degree of similarity of content of the two groups of courses.

TABLE CLXXIV

AVERAGE NUMBERS OF PAGES AND PERCENTAGES OF THEORY AND AVERAGE NUMBERS AND PERCENTAGES OF EXERCISES AND OF PROBLEMS IN THIRTY-TWO COURSES IN HIGHER ALGEBRA AND THIRTY-FIVE COURSES IN COLLEGE ALGEBRA

TOPICS	I. THEORY				II. EXERCISES				III. PROBLEMS			
	High Schools		Colleges		High Schools		Colleges		High Schools		Colleges	
	Number pages	Per cent	Number pages	Per cent	Number pages	Per cent	Number pages	Per cent	Number pages	Per cent	Number pages	Per cent
Fundamental operations	4.59	4.5	7.86	5.6	138.4	5.4	34.0	2.8	3.0	.7	1.4	.6
Detached coefficients	.28	.3	.04	.0	3.5	.1	.1	.1	..	..	..	..
Special products	1.14	1.1	.15	.1	79.5	3.2	4.4	.3	7.9	2.6	..	..
Factoring	8.53	8.0	2.44	1.7	378.8	14.9	50.3	4.2	..	..	..	..
Fractions	4.02	3.7	1.20	.8	125.9	5.0	26.9	2.1	..	..	..	..
Linear equations	5.02	4.7	1.07	.8	87.3	3.5	14.6	1.2	69.2	24.4	7.2	3.3
Linear systems	6.20	5.5	4.18	3.0	72.6	3.0	38.9	3.2	37.1	14.2	15.5	8.8
Inequalities	.06	.0	2.09	1.6	.3	.0	20.0	1.7	.1	.0	.1	.1
Exponents	3.82	3.5	3.14	2.4	211.3	8.5	51.1	4.5	.8	.3	2.6	1.6
Radicals	7.56	6.9	3.01	2.1	320.6	12.8	88.4	7.5	10.5	3.8	1.4	.6
Functions and their graphs	7.40	6.5	9.49	7.5	32.2	1.4	62.1	5.9	1.4	.3	4.3	2.1
Graphical presentation of numerical data	.55	.5	.88	.8	3.2	.1	4.1	.4	..	..	..	..
Solution of equations by graphs	5.68	5.0	5.31	4.1	50.0	2.0	62.1	5.7	.3	.9	.8	.4
Indeterminate equations	.85	.7	.23	.2	3.5	.1	.4	.0	..	..	.7	.2
Quadratic equations	6.15	5.7	4.10	3.1	190.5	7.5	64.8	5.8	37.2	15.4	24.1	14.3
Quadratic systems	5.96	5.3	3.57	3.0	95.2	3.9	69.7	6.0	34.0	12.9	12.8	7.3
Equations in quadratic form	.96	.9	.92	.7	32.5	1.3	21.7	1.9	.3	.2	..	..
Irrational equations	2.29	2.1	.72	.4	34.0	1.4	10.5	.8	.6	.2	..	..
Imaginaries and complex numbers	3.66	3.2	2.97	1.9	91.8	3.6	38.6	3.1	..	..	.2	.1

Graphical presentation of complex numbers	.85	.7	2.00	1.5	5.3	.2	26.6	2.2	.2	.0	.7	.5
Theory of quadratic equations	3.21	3.0	2.77	2.0	75.3	3.0	38.6	3.4	..	..	2.9	1.3
Progressions	5.99	4.9	4.73	3.8	114.5	4.3	43.8	3.9	25.8	8.7	19.5	10.7
Binomial theorem	4.17	3.6	3.66	2.7	65.6	2.5	35.6	3.4	..	..	2.1	1.2
Ratio and proportion	2.18	1.9	.79	.4	26.8	1.0	5.1	.3	15.3	5.2	1.9	.8
Variation	2.27	1.9	1.31	.9	5.7	.2	4.5	.4	9.7	3.5	10.8	6.1
Logarithms	8.23	6.7	8.24	5.6	149.1	5.7	75.4	6.6	7.0	2.3	12.4	6.9
Limits and infinity	.60	.5	3.09	2.0	1.1	.1	5.1	.6	1.5	.5	..	..
Permutations	.23	.1	2.09	1.3	..	..	..	..	1.8	.5	13.0	6.7
Combinations	.15	.1	1.54	.9	..	..	..	..	1.4	.4	14.1	7.5
Probability	.12	.1	2.22	1.4	..	..	..	..	1.1	.3	15.6	9.8
Determinants	1.85	1.3	10.55	7.9	8.1	.4	29.9	3.3	..	..	.7	.5
Mathematical induction	.23	.2	1.54	1.4	1.4	.6	7.3	.6	..	..	.1	.0
H. C. F. and L. C. M. by Euclid's method	.26	.2	.77	.4	1.7	.6	3.6	.3	..	..	..	..
Classification of numbers	.31	.3	.40	.3	..	..	..	..	..	..	..	..
Synthetic division	.79	.7	1.99	1.5	6.3	0.3	5.8	.8	..	..	..	..
Square root	4.34	4.1	.22	.1	85.8	3.3	2.1	.1	7.7	2.5	..	..
Cube root	1.13	.9	.07	.0	10.5	.4	.5	.0	.4	.2	..	..

Illustrating excesses, similarities, and variation among the courses.—Because a table of averages does not disclose fully the relationship two groups of courses may bear toward each other, it is desirable to illustrate by presenting further detail in the way of distributions of the courses by amounts and percentages devoted to certain of the topics into which the content has been divided. This illustrative comparison is afforded in Tables CLXXV-CLXXVII, the distributions introduced being drawn from a full array worked out for each topic in each of the three divisions of the courses, theory, exercises, and problems. For the reason that we have seen some tendency for topics to hold their same degree of prominence in the first two divisions, proportions of theory are drawn upon more largely than are proportions of exercises. Moreover, since problems constitute the least important part of the courses, the distributions in this division are not illustrated.

TABLE CLXXV

ILLUSTRATIVE DISTRIBUTION OF COURSES IN HIGHER ALGEBRA AND IN COLLEGE ALGEBRA BY PAGES OF THEORY IN TOPICS IN WHICH THE FORMER TEND TO EXCEED THE LATTER

EQUATED PAGES	FACTORING		RADICALS		QUADRATIC EQUATIONS	
	High School	College	High School	College	High School	College
0	..	2	..	4	..	2
.1- 1.0	..	17	..	1	..	2
1.1- 2.0	..	1	..	2	..	2
2.1- 3.0	1	5	..	14	..	3
3.1- 4.0	1	3	..	6	6	17
4.1- 5.0	1	4	1	..	..	2
5.1- 6.0	..	..	3	6	16	..
6.1- 7.0	3	..	12	..	1	4
7.1- 8.0	2	2	13	2	1	..
8.1- 9.0	5	..	..	..	7	..
9.1-10.0	16	1	1	..	..	2
10.1-11.0	2	..	1	..	..	1
11.1-12.0	1	..	..	..	..	..
14.1-15.0	..	..	..	..	1	..
16.1-17.0	..	..	1	..	..	..
TOTALS	32	35	32	35	32	35
AVERAGE	8.5	2.4	7.6	3.0	6.1	4.1

TABLE CLXXVI

ILLUSTRATIVE DISTRIBUTION OF COURSES IN HIGHER ALGEBRA AND IN COLLEGE ALGEBRA BY PAGES OF THEORY IN TOPICS IN WHICH THE LATTER TEND TO EXCEED THE FORMER

EQUATED PAGES	PERMUTATIONS		COMBINATIONS		DETERMINANTS	
	High School	College	High School	College	High School	College
.0	30	9	30	9	23	1
.1- 1.0	..	2	..	4	2	1
1.1- 2.0	..	2	1	16	4	..
2.1- 3.0	1	18	1	3	..	11
3.1- 4.0	..	..	..	1	..	..
4.1- 5.0	1	2	..	..	..	..
5.1- 6.0	..	..	..	..	..	..
6.1- 7.0	..	2	..	..	..	..
7.1- 8.0	..	..	..	..	..	..
8.1- 9.0	..	..	..	..	..	..
9.1-10.0	..	..	..	..	1	3
10.1-11.0	..	..	..	2	..	..
11.1-12.0	..	..	..	..	..	..
12.1-13.0	..	..	..	..	..	1
13.1-14.0	..	..	..	..	..	2
14.1-15.0	..	..	..	..	..	1
15.1-16.0	..	..	..	..	..	2
16.1-17.0	..	..	..	..	..	2
17.1-18.0	..	..	..	..	..	9
18.1-19.0	..	..	..	..	1	..
19.1-20.0	..	..	..	..	..	2
23.1-24.0	..	..	..	..	1	..
TOTALS	32	35	32	35	32	35
AVERAGE	.2	2.1	.1	1.5	1.9	9.9

The first of this group of tables (CLXXV) illustrates the distributions of courses by equated pages of theory in three topics in which there is a tendency for higher algebra to exceed, viz., factoring, radicals, and quadratic equations. The tendency referred to is clearly present, but the reader is admonished not to overlook the overlapping of the courses: in each of these three topics some of the courses in college algebra exceed in amount some of the high school courses. Even during the long history of this subject in secondary schools and colleges the content of the courses into which it has been broken is not sufficiently standardized to bring about anything approaching a clear-cut distinction between the courses on the two levels represented.

The situation for the topics in which the courses in college algebra exceed as illustrated in Table CLXXVI shows greater progress in the degree of differentiation, although here again there is some extent of overlapping of the distribution. Table CLXXVII, however, brings us back to a striking impression of similarity of content.

TABLE CLXXVII

ILLUSTRATIVE DISTRIBUTION OF COURSES IN HIGHER ALGEBRA AND IN COLLEGE ALGEBRA BY PAGES OF THEORY IN TOPICS IN WHICH THE TWO GROUPS OF COURSES TEND TO BE EQUAL

EQUATED PAGES	FUNCTIONS AND THEIR GRAPHS		THEORY OF QUADRATIC EQUATIONS		BINOMIAL THEOREM	
	High School	College	High School	College	High School	College
0	1	1	4	4	2	1
.1- 1.0	..	..	1	4	..	3
1.1- 2.0	..	1	2	11	..	10
2.1- 3.0	1	4	9	8	5	9
3.1- 4.0	1	2	4	6	14	6
4.1- 5.0	7	..	9	2	8	5
5.1- 6.0	5	4	3	..	3	..
6.1- 7.0	..	5	..	..	..	..
7.1- 8.0	8	5	..	..	..	1
8.1- 9.0	5	2	..	..	..	..
9.1-10.0	2	4	..	..	..	..
10.1-11.0	2	2	..	..	..	..
11.1-12.0	..	1	..	..	..	..
12.1-13.0	..	..	..	..	..	..
13.1-14.0	..	2	..	..	..	..
14.1-15.0	..	1	..	..	..	..
20.1-21.0	..	1	..	..	..	..
TOTALS	32	35	32	35	32	35
AVERAGE	6.5	7.4	3.0	2.1	3.6	2.7

Table CLXXVIII illustrates the distributions of the two groups of courses with reference to their percentages of exercises in three topics used for illustrative purposes in Tables CLXXV, CLXXVI, and CLXXVII. These distributions are not essentially different from those of the foregoing tables and illustrate again the tendencies to differentiation and to similarity of the courses on the two levels. It will be well to recall in interpreting this table that equivalent percentages in the two columns of each pair are likely to mean twice the number of exercises in the courses on the lower level.

TABLE CLXXVIII

ILLUSTRATIVE DISTRIBUTIONS OF COURSES IN HIGHER ALGEBRA AND IN COLLEGE ALGEBRA BY PER CENT OF EXERCISES IN TOPICS IN WHICH (a) THE FORMER TEND TO EXCEED, (b) THE LATTER TEND TO EXCEED, AND (c) THEY TEND TO BE EQUAL

PER CENT	RADICALS		DETERMINANTS		THEORY OF QUADRATIC EQUATIONS	
	High School	College	High School	College	High School	College
0	..	5	23	3	4	4
.1- 1.0	..	4	2	4	..	1
1.1- 2.0	..	2	6	8	6	..
2.1- 3.0	..	1	1	10	6	9
3.1- 4.0	..	1	..	1	4	11
4.1- 5.0	..	2	..	4	10	6
5.1- 6.0	..	2	..	2	2	4
6.1- 7.0	..	2	..	..	..	..
7.1- 8.0	..	4	..	..	..	..
8.1- 9.0	1	3	..	..	..	..
9.1-10.0	2	2	..	..	..	..
10.1-11.0	3	2	..	1	..	..
11.1-12.0	9	3	..	..	..	..
12.1-13.0	3	1	..	1	..	..
13.1-14.0	3	1	..	..	..	..
14.1-15.0	7	..	..	..	..	..
15.1-16.0	2	..	..	..	..	..
16.1-17.0	1	..	..	..	..	..
17.1-18.0	..	..	..	..	..	..
18.1-19.0	..	..	..	1	..	..
19.1-20.0	1	..	..	..	..	..
TOTAL NUMBER	32	35	32	35	32	35
AVERAGE	12.3	7.5	0.4	3.3	3.0	3.3

Differences in difficulty not fully represented in this comparison.—The admission must be made that the analysis and comparison of the type here essayed are not fully adequate to the purposes of an inquiry concerning the actual extent of overlapping of the courses on the two levels. A mere count of pages, exercises, and problems classifying under each topic does not supply complete information on the relative difficulty of the courses or on the achievements of students pursuing them. Only a more extended comparison of detailed content classifiable under each topic and tests of abilities of the two groups of students concerned at the time of completing the courses could supply all the information needed for a full answer on the point raised. More extended investigation was, however,

out of the question. The nature of the inquiry and its findings is such, nevertheless, as to establish the fact of the large extent of overlapping of content in the courses in higher algebra and college algebra, and to justify the doubt that the present organization and distribution of content is as it should be.

Instructors' opinions of what the distinctions are and should be.—As in certain other chapters of Part IV, it is possible to compare the facts of difference resulting from analysis with the opinions of high school and college teachers as to what the differences are and should be. The questions asked of these teachers and the answers to which are here summarized were as follows: "In what respects in your experience does the course in higher algebra differ from the course in college algebra?" and "In what respects should these courses differ?" Few of the instructors whose responses have been used in other portions of the current chapter neglected to respond on this point. When there was failure to answer, it was on one or the other of the two questions rather than on both.

The distinctions most frequently mentioned as obtaining in present courses concern (a) the larger emphasis upon theory in college algebra and (b) the addition of content not to be found in the lower courses. Among these additional topics more frequently mentioned are theory of equations, permutations, combinations, probability, mathematical induction, and determinants. The great majority of the remaining statements made are in harmony with these and are along the following lines: the college course is "more difficult"; it requires "more proofs" and "more generalization"; the "idea of functionality" comes in for greater emphasis; topics are treated "more thoroughly"; there is "less drill," "less review"; "higher algebra gives students the use of the machine, college algebra the why of it," etc.

A type of statement volunteered by a large proportion of the instructors at the same time that they were expressing their opinions on the differences concerns the large extent of overlapping of the two courses. In some instances this seems to have been admitted as desirable and in others to be deplored. The feeling of regret seems to be entertained by college instructors somewhat more frequently than by high school teachers, the former taking the opportunity to pay their conventional respects to what they take to be the inefficiency of the courses in the unit below, an inefficiency which they feel tends to increase unduly the need for repetition. Let it be noted however, that many assume overlapping without questioning the necessity for it and without criticizing the work in the lower course.

The significant fact in this description of the chief types of opinion is that their major trend is corroborated by the results of the analysis and comparison, the presentation of which has been the primary concern of this

chapter. If there is disagreement between the facts and the opinions, it is that the latter in some degree overreach the former, and lead one to a belief that the difference believed to exist is greater than that actually found, the exaggeration being due to the form into which the questions quoted were put, asking for differences and not similarities.

III. Size of Sections, Methods

Size of sections.—Almost all those responding to the blank of inquiry reported the numbers of students in class sections. Where there were two or more sections the average was computed. The medians of distributions resulting were 24 for the courses in higher algebra and 25 in college algebra. The ranges of the middle fifty per cent were, respectively, 16 to 25 and 20 to 28.

The predominant methods used.—A full two thirds of both high school and college instructors report the classroom method as that of "recitation," although this description doubtless covers some variation in details of procedure. The remainder in the high school group report the use of methods which they designate as "supervised" or "laboratory" study. The college group deviating from the typical method report that they lecture, some of them only occasionally, others up to two thirds of all the class periods.

The predominant practices as to size of class sections and classroom procedures lead to no conclusion of wide differentiation of the courses on these two levels resulting from distinctions in these respects. An examination of details of procedure also reported by instructors but not presented here discovers no notable differences.

IV. Summary and Significance

1. Thirty-two courses in higher algebra and 35 in college algebra are represented in the materials of this chapter. The median numbers of clock hours of instruction are approximately 70 and 50, respectively, the former exceeding the latter by approximately 40 per cent. The latter is usually taken by the student in his freshman college year, which is the next year or the next year but one subsequent to his having taken the latter.

2. When the content of the courses is distributed to three divisions, theory in a loose sense, exercises, and problems, college algebra is found to contain a larger number of equated pages of the first division, while higher algebra has more than double the number of exercises and a larger number of problems.

3. When the content of these three types is subdivided under the many topics of algebra both differentiation and overlapping of content become apparent. Differentiation is shown, on the one hand in the larger proportions of higher algebra devoted to more elementary topics like factoring, linear

equations, radicals, etc., and, on the other, in the larger proportions of college algebra devoted to more advanced topics like permutations, combinations, probability, and determinants. The large extent of overlapping is shown both (a) in the generous list of topics such as quadratic equations, irrational equations, progressions, and the binomial theorem, in which the courses on the two levels have proportions of the total content approximately equal, and (b) in the overlapping in the distributions of percentages when all higher algebra and all college algebra courses are compared.

4. Opinions of instructors on differences that do and should exist when tabulated are in rather close accord with the facts on the differences as just summarized. These differences are primarily in the emphasis upon theory and additional advanced topics in the courses in college algebra.

5. Size of class sections and classroom procedure do not differ sufficiently on the two levels to warrant us in anticipating much difference in the courses on this account.

6. Although not a fully adequate study of similarities and differences of the courses on the two levels there are grounds for concluding from the evidence presented that, if the content of the lower is of secondary school character, that of the upper is for the most part at least in the same class. No distinct line of demarcation between their bodies of content either in topics or difficulty is discernible. The conclusion on this count seems to be in harmony with the situations found in the foregoing chapters dealing with English literature, English composition, and the first courses in French. With them it argues against the artificial line of demarcation to be found in our school system which designates the year in which college algebra is given as a part of higher education.

7. It must be apparent also that such a large extent of overlapping must entail a considerable loss of time for the student who pursues both courses, since he must go over the same ground twice and, in some instances even, three times. This waste is likely to continue as long as the two courses concerned are given in two distinct institutions neither of which endeavors to achieve intimate knowledge of what is going forward in the other and the upper of which chronically disparages the work done in the lower. If the two courses could be presented in a single unit of the school system and, even better, by the same instructor, the appropriate articulation of the courses could be effected, and the second make its proper advance beyond the ground covered by the first. It does not seem unreasonable to anticipate that reorganization of the school system by instituting junior college years in connection with strong high schools will in time achieve a reorganization of courses in this field in such a way that the content distinctive of, and common to, the two courses under consideration will be given in a single

course which obviates the bootless repetition and can therefore be covered in less than the time now required to take both higher and college algebra. Some of the repetition obtaining, without doubt, results from the loss through lapse of time between the taking of the two courses, and this leads to the recommendation that *all* of their content be given nearer the point at which application is to be made of the materials presented—and therefore, as already concluded, in a single college course.

The endeavor has been only to illustrate overlapping in mathematics by directing attention to a single division of the subject. Further duplication could be demonstrated in a canvass of fields of mathematics other than algebra.

CHAPTER XXXIII

OVERLAPPING IN CHEMISTRY

I. Preliminary Considerations

Method and sources.—In this study of overlapping of high school and college courses in chemistry, the subject used to illustrate the field of the sciences, essentially the same procedure was followed as in the subjects and courses dealt with in foregoing chapters. The larger aspects of this method are (1) making inquiry of heads of departments of chemistry in schools of the types concerned in the matter of their practices and (2) the analysis of the materials reported as constituting the courses under consideration. There are certain deviations in the details of the analysis which it seems more suitable to make clear at points where the findings concerned are reported.

The high schools represented in this study are 26 in number distributed among 6 north central states as follows: Illinois, 9; Indiana, 1; Iowa, 8; Minnesota, 5; South Dakota, 1; and Wisconsin, 2. All high schools concerned are in cities with populations of 10,000 and over. The number of higher institutions involved is somewhat larger, representing 41 scattered in 11 states as follows: Colorado, 1; Illinois, 7; Indiana, 1; Iowa, 4; Kansas, 4; Michigan, 3; Minnesota, 2; Missouri, 6; Nebraska, 4; Ohio, 7; and North Dakota, 2. All are institutions of the college type excepting 4, which include 3 state and 1 private university. The institutions appealed to were selected at random from lists of standard schools. Besides the fact that all must be approved schools the only additional principle of selection is that which concerns the population of the city in which the high schools are located, as already intimated.

Titles of the courses concerned.—The high school courses in this field reported upon bear such names as "chemistry," 9 of 26 schools; "elementary chemistry," 7; "general chemistry," 3; and "beginning chemistry," 3; with a scattering of other titles. The college courses bear the names "general inorganic," 19; "general," 14; "Chemistry I and II," 4; and "elementary," 3. For such institutions represented as offer two courses in general inorganic chemistry, one for those with, and the other for those without, a unit in high school chemistry, the latter was the one designated for description in the questionnaire.

The time element.—All courses included in this study, both high school and college, extend through a full school year. The median numbers of minutes per week in recitation (or lecture) are 135 and 150—a difference of only 15 minutes per week in favor of the college. The difference in time spent in laboratory is greater, the respective median amounts being 160 and

225 minutes. Adding the medians for recitation and laboratory we obtain weekly totals of 295 minutes in high school and 375 in college courses, a total weekly excess for the college of 80 minutes, or approximately 27 per cent. The median number of periods in recitation and laboratory are the same in both institutions, being, respectively, 3 and 2. The difference in amount of time is usually one of length, not of number, of periods.

Classification of students.—The predominant classification of students taking the high school courses is reported as juniors and seniors in 16 instances, seniors in 8 instances, and juniors in the 2 instances remaining. These data corroborate those of other investigations showing high school chemistry to be predominantly a course pursued by seniors. The college courses are taken in 28 institutions primarily by freshmen; in 5, by freshmen and sophomores; in 5, by "all" classifications; in 1, by sophomores; in 1, by sophomores and juniors. No report was made on this point by one college. Students in first college courses in chemistry are, therefore, primarily freshmen. We have here an interesting instance of a subject taken predominantly by those in the last year of the lower, and in the first year of the upper, unit. This situation, combined with the approach to identity in titles of the courses and amounts of time and numbers of periods in classroom and laboratory, presages a large measure of identity of content.

II. Comparison of the Content of High School and College Texts

The relation of the textbook to the course.—The chief feature of the method of comparing the content of high school and college courses in this subject was that of comparing the textbooks and laboratory manuals the use of which was reported in the blanks of inquiry. This procedure has its justification in the fact that deviations from these texts are not at all commonly made. That is to say, the textbook and laboratory manual constitute the course. That the analysis of the textbooks almost adequately represents the classroom content of the course may be judged from what follows touching the extent of omissions from them and the presentation later in the chapter of the frequency and amounts of collateral reading. It is apparent that no omissions are made from the texts used in 15 of the 26 high school courses represented. In 7 of the remaining high schools only the organic materials or a part of these materials are reported as eliminated. The 4 remaining department heads report "little" or "very little" in the way of omission. As these may for practical purposes be added to the 15, we may safely conclude that 19 of the 26 high schools make no, or practically no, omissions from the textbook used, the remainder excluding only some or all of the organic chemistry. The situation as it concerns college courses is even more one of textbook domination, as 30 report no omissions; 6, the

small amount of organic work in the text used; 1, the marsh gas series; and 3, "very little."

The textbooks used.—For the group of colleges supplying information for this study the two texts used much more often than others are McPherson and Henderson,[1] and Smith.[2] The former is reported by 16 colleges, the latter by 17. Among other texts reported once or twice each are Hessler and Smith, Remsen's *Briefer Course,* Smith's *Intermediate,* McPherson and Henderson's *Elementary Study of Chemistry,* Newell, Cody, etc. Because as far as this group of colleges is concerned the two texts first named have the field, the problem of textbook analysis simmers down primarily to the two volumes first named.

The high school text most frequently reported is that by Brownlee and others.[3] It is used in 14 of the 26 high school courses represented. Other texts reported twice or oftener are Dull's *Essentials of Modern Chemistry,* 4; McPherson and Henderson's *Beginning Chemistry,* 3; Smith's *Elementary Chemistry,* 3; and Newell's *General Chemistry,* 2. The three selected for analysis are Brownlee's, McPherson and Henderson's,[4] and Smith's.[5] As time limitations prevented analysis of all texts, it was decided the two texts last named should be examined in preference to Dull, owing to the fact that the same authors' college texts were represented in this study.

Hereafter these five texts selected for analysis will be referred to by number in the following order: I, McPherson and Henderson's college text; II, Smith's college text; III, McPherson and Henderson's high school text; IV, Smith's high school text; and V, Brownlee and others'.

The results of the analysis.—A comparison of the content of these five texts separately and when averaged for the two units in the school system for which they were intended, i.e., college and high school, is afforded in Table CLXXIX. The two larger headings under which the content has been divided are seen to be (a) the common elements and (b) the other subdivisions, these in turn being broken into the subheadings to be found in the left-hand column. For each text and for each group of texts are shown the numbers of lines[6] devoted to each of the several subdivisions and the percentages these numbers are of the total content. For instance, occurrence

[1] William McPherson and William E. Henderson, *Course in General Chemistry.* Boston: Ginn & Co. 1921.

[2] Alexander Smith, *General Chemistry for Colleges.* New York: Century Company. 1920.

[3] R. B. Brownlee, R. W. Fuller, W. J. Hancock, M. D. Sohon, and J. E. Whitsit, *First Principles of Chemistry.* Revised edition. Boston: Allyn and Bacon. 1915.

[4] William McPherson and William E. Henderson, *Beginning Chemistry.* Boston: Ginn & Co. 1915.

[5] Alexander Smith, *Elementary Chemistry.* New York: Century Company. 1914.

[6] The line was used as the counter rather than the page because the pages were so frequently broken by illustrations which were usually of small size confined to parts of a page. All lines reported have been reduced to the same basis in order to make the data readily comparable. If the reader desires to ascertain the number of pages involved at any point this may be obtained with at least approximate accuracy by dividing the figures given by 35, the approximate number of lines per page.

of the common elements receives 503 lines of attention in Text I, or 1.95 per cent of the total volume.

Before examining the data concerning divisions and subdivisions it is desirable to note the total numbers of lines in each of the five texts represented, as well as the averages for the college and high school groups, shown in the lowest line of figures. The total content of both college texts is seen to exceed markedly that of each high school text. Especially is this true of a comparison with the first two high school texts. If these texts only are considered, it may be said that, roughly speaking, they contain from a half to three fifths of the total content of the college texts. Text V contains much more than Texts III and IV, approximately three fifths to three fourths of the college texts. It should be remembered in this connection that Text V was used in a total of fourteen of the twenty-six high schools represented. The higher proportions are, therefore, more nearly characteristic than are the former.

The next logical points of interest are amounts and proportions of space assigned to the two major divisions in each of the texts and in the college and high school texts as grouped. The figures show the two college texts to be not far from identical, both as to total amounts and percentages. The same may be said for the first two high school texts. The amounts and proportions in the third high school text favor the second major division somewhat more than do the first two. The influence of the differences in this text is apparent in the amounts and percentages of the college and high school texts in the last two pairs of columns, but is not as great as it would be if the frequency of use of these texts were introduced into the computations.

A glance down the columns of figures setting forth the distribution of the content of Texts I and II shows that there are some appreciable but no very notable differences between them. Similar comment is called forth by examination of the distribution for Texts III and IV. As may be anticipated from what has already been disclosed, the figures on the distribution for Text V conform neither to those for Texts I and II nor Texts III and IV. Especially is it true of the numbers of lines, but it obtains also for the column of percentages.

Since most of the differences as to each of the subdivisions can be made apparent through the averages for the groups of texts—college and high school—a summary of the comparison may be more readily attained by examining more particularly the last two pairs of columns in Table CLXXIX. To facilitate the process of interpretation Figures 86 to 89 are also presented. The first two of these put in graphic form the data on the average numbers of lines; the second two, the average of the percentages. A satisfactory appreciation of both similarities and differences is not possible without both amounts and percentages.

TABLE CLXXIX

AMOUNTS AND PERCENTAGES OF SPACE DEVOTED TO THE SEVERAL SUBDIVISIONS OF CHEMISTRY IN COLLEGE AND HIGH SCHOOL TEXTBOOKS IN CHEMISTRY

SUBDIVISIONS OF CHEMISTRY	TEXT I		TEXT II		TEXT III		TEXT IV		TEXT V		AVERAGE COLLEGE		AVERAGE HIGH SCHOOL	
	Lines	Per Cent	Lines	Per Cent	Lines	Per Cent	Lines	Per Cent	Lines	Per Cent	Lines	Per Cent	Lines	Per Cent
COMMON ELEMENTS														
1. Occurrence	503	1.95	376	1.20	263	1.77	302	2.15	304	1.61	440	1.62	290	1.83
2. Preparation	1,316	5.13	1,157	3.98	762	5.13	871	6.23	971	5.16	1,236	4.56	868	5.47
3. Physical properties	566	2.21	844	2.91	471	3.17	417	2.98	697	3.71	705	2.56	528	3.33
4. Chemical properties	716	2.79	1,099	3.78	517	3.48	381	2.72	691	3.68	908	3.29	530	3.34
5. History	267	1.04	110	.38	56	.47	82	.58	38	.20	189	.71	59	.37
6. Uses	361	1.41	301	1.03	409	2.75	493	3.45	669	3.56	331	1.22	524	3.30
7. Compounds—preparation	3,508	13.67	3,973	13.69	1,359	9.13	1,180	8.44	1,392	7.41	3,740	13.68	1,310	8.25
8. Compounds—description and properties	3,060	11.92	3,370	11.61	1,489	10.03	1,365	9.76	1,413	7.51	3,215	11.77	1,422	8.96
9. Compounds—uses	1,350	5.26	1,976	6.81	1,120	7.54	1,110	7.93	1,393	7.41	1,663	6.04	1,208	7.61
OTHER SUBDIVISIONS														
10. Rarer elements	1,086	4.23	952	3.28	118	.79	239	1.70	212	1.13	1,019	3.76	190	1.20
11. Organic compounds	994	3.87	1,041	3.58	1,221	8.22	1,276	9.13	1,233	6.56	1,018	3.72	1,243	7.83
12. Processes	4,096	15.96	4,740	16.33	2,252	15.16	2,413	17.26	3,047	16.21	4,418	16.15	2,571	16.20
13. Principles, etc.	1,056	4.11	2,270	7.82	475	3.21	422	3.02	380	2.02	1,663	5.97	426	2.68
14. Chemical laws and their interpretations	1,468	5.72	1,366	4.71	531	3.64	736	5.26	1,216	6.47	1,417	5.22	828	5.22
15. Definitions and explanations	3,544	13.81	4,126	14.21	2,419	16.29	1,971	14.09	1,769	9.41	3,835	14.01	2,053	12.93
16. Questions	836	3.25	721	2.48	590	3.97	473	3.38	1,446	7.69	779	2.87	836	5.27
17. Problems	715	2.78	308	1.06	145	.97	189	1.35	558	2.96	512	1.92	297	1.87
18. Summaries and restatements	220	.86	289	.99	653	4.39	62	.44	1,362	7.24	255	.93	692	4.36
Totals of common elements	11,647	45.38	13,206	45.48	6,446	43.47	6,201	44.24	7,568	40.25	12,427	45.45	6,739	42.45
Totals of other subdivisions	14,015	54.59	15,813	54.46	8,404	56.64	7,781	55.63	11,223	59.69	14,916	54.55	9,136	57.56
GRAND TOTALS	25,662	99.97	29,019	99.94	14,850	100.11	13,982	99.87	18,791	99.94	27,343	100.00	15,875	100.01

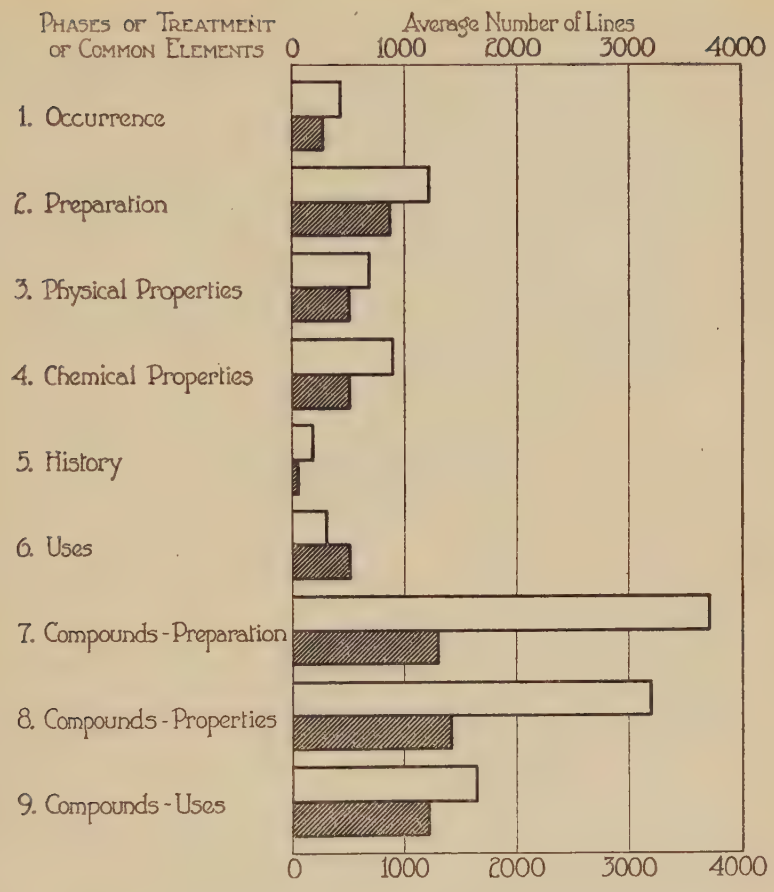

Figure 86

Comparison of the distribution to the several subdivisions of the space devoted to the common elements in college and high school textbooks in chemistry. (in outline, college; shaded, high school)

From what was shown above as to the total amount of content in the two groups of textbooks, it would not have been difficult to predict that the college texts would have *more* material in many of the subdivisions which high school and college courses have in common. This prediction is borne out by Figures 86 and 87, since in all but four of the eighteen subdivisions the average college amounts exceed the high school amounts. The exceptions are the uses of the common elements, organic compounds, questions, and summaries and restatements. The second of the exceptions is to be explained by the fact that the college courses are more often designated as general *inorganic* chemistry than are the high school courses, which aim to be even more general in character. The third and fourth are explicable

through the greater emphasis upon pedagogical devices in the texts used in the lower unit. The largest differences in favor of the college texts are in the preparation and properties of compounds, the rarer elements, processes, principles, and definitions. Despite the differences all subdivisions are represented in both college and high school texts.

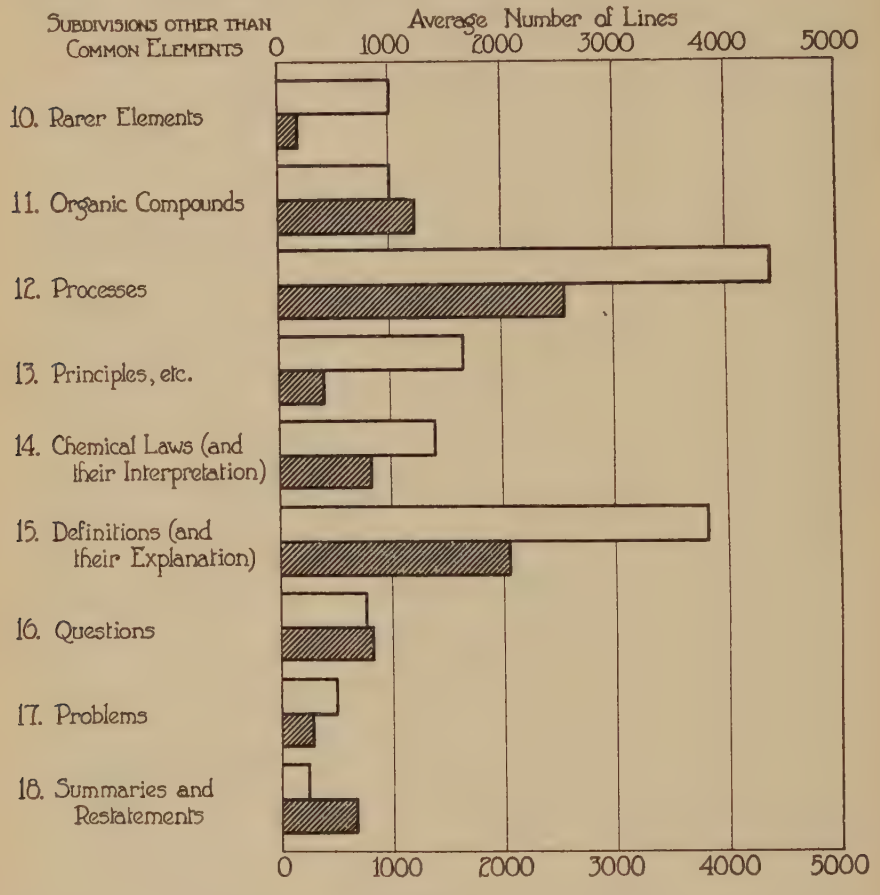

Figure 87

Comparison of space devoted to other types of materials in college and high school textbooks in chemistry (in outline, college; shaded, high school)

The figures presenting the percentages (88 and 89) tend to emphasize the similarity more than do those just referred to. The notable differences in favor of the college are reduced to four, viz., preparation of compounds, properties of compounds, the rarer elements, and principles. On the other hand, one subdivision, uses of compounds, is added to those in which high school texts have an excess, while for others the excess appearing in the first pair of figures is accentuated.

As far as is to be concluded from the data presented, it may be said that, although *college texts are more extended than high school texts, the relative recognition of the several subdivisions does not differ widely, excepting that the former stress compounds (especially their preparation and properties), the rarer elements, and principles more than do the latter, while the latter make more of uses (both of elements and compounds), organic materials, and pedagogical features such as questions and summaries. Furthermore, the similarities far exceed the differences.*

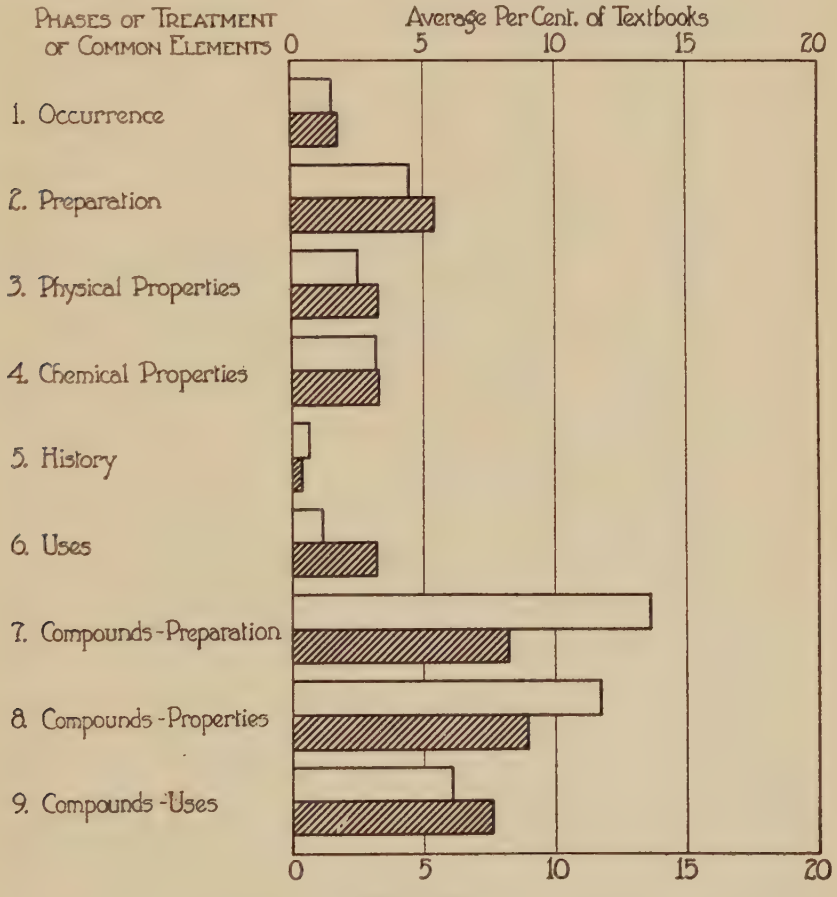

Figure 88

Comparison of percentage distribution to the several subdivisions of the space devoted to the common elements in college and high school textbooks in chemistry (in outline, college; shaded, high school)

Illustrative details of the differences found and of the process of analysis.—It will be pertinent here to demonstrate further the nature of some of the differences already shown as well as to set forth more completely the meaning of the subdivisions.

The chief difference in favor of the college texts under the main head of common elements appears in the subdivisions dealing with *compounds*. The nature of the difference is at least partly made clear in Table CLXXX, which presents the number of different compounds touched upon in each of the five texts included in the analysis. There is seen to be a larger number of compounds for each of these three elements in both the college texts than in any one of the high school texts, while the college mean for all three elements is almost twice the high school mean.

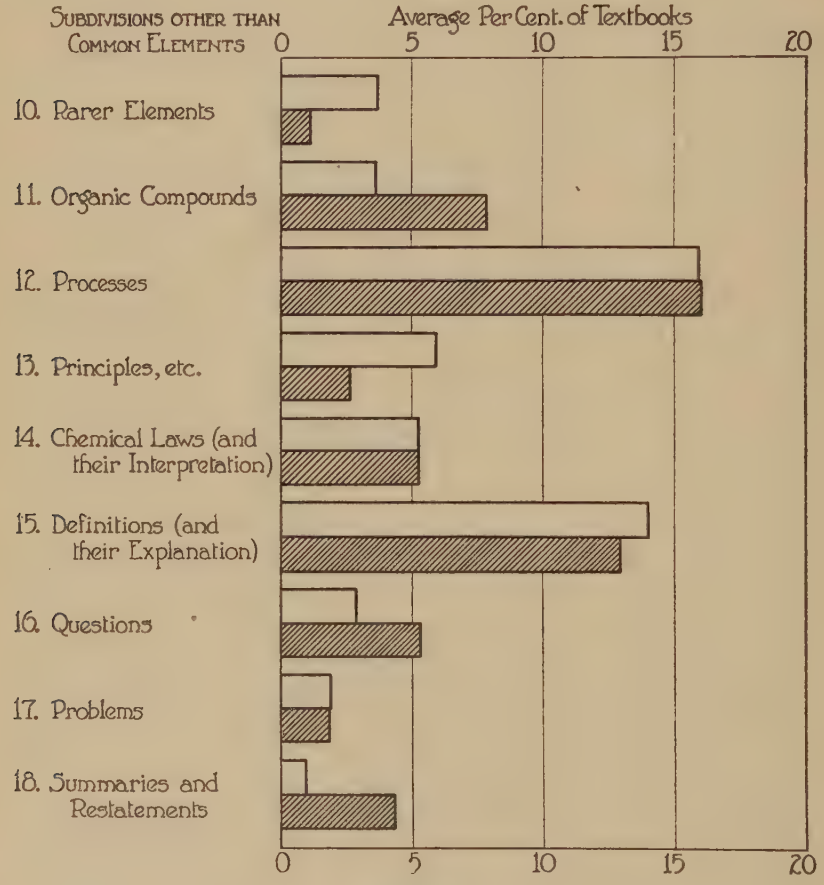

Figure 89

Comparison of percentages of space devoted to other types of materials in college and high school textbooks in chemistry (in outline, college; shaded, high school)

The difference in the matter of the *rarer and less common elements* may be made clear in brief space by stating that, while one college text refers to at least 22 and the other to at least 20, high school texts refer to a much

smaller number. In fact, two of the latter mention or deal with only a few, one only of these texts concerning itself with more than half the number. Radium and helium are the only two rarer and less common elements discussed in all of the five texts.

TABLE CLXXX

NUMBERS OF COMPOUNDS OF SULPHUR, NITROGEN, AND IRON DEALT WITH IN EACH OF TWO COLLEGE AND THREE HIGH SCHOOL TEXTBOOKS IN CHEMISTRY

ELEMENTS	TEXT I	TEXT II	TEXT III	TEXT IV	TEXT V	COLLEGE MEAN	HIGH SCHOOL MEAN
Sulphur	22	20	8	15	6	21	9.6
Nitrogen	12	14	9	7	8	13	8
Iron	19	19	11	12	12	19	11.6
TOTALS	53	53	28	34	26	53	29.3

The fact has already been mentioned that the high school make more than the college texts of the organic compounds. If these are broken into two groups, (a) the hydrocarbons and (b) the carbohydrates and allied compounds, the difference between the two sets of texts in favor of the high school is located in the latter group. The average number of lines concerning hydrocarbons in the college texts is 445, while the average for the high school texts is 386. The averages for the carbohydrates and allied compounds are, respectively, 573 and 857—a marked difference of almost 300 lines in favor of the high school texts.

The *processes* of which the textbooks for colleges contain larger amounts but equal percentages with those for high schools include somewhat more than forty such categories as decomposition of water, distillation, filtration, electrolysis, explosions, precipitation, etc. *Principles, etc.*, of which there is more extended and larger proportionate treatment in college than in high school texts, comprehends a dozen such categories as gravity, reversibility, equilibrium, speed of reaction, etc. *Laws,* of which college texts treat more extendedly but with similar proportionate emphasis, include Boyle's, Charles', periodic, Van't Hoff's, etc. What is comprehended by the term *definitions* is too obvious to require illustration. It should be said before leaving consideration of these groups of processes, principles, laws, and definitions that another investigator might have classified some of the items listed under these categories somewhat differently than has been done. Even so, the outcome for comparative purposes could hardly have differed widely from that presented, since the same basis of classification has been used for both college and high school texts and the disagreements could hardly have been large in total extent in any event. If these four groups

are assumed to comprehend the more theoretical portions of the course in chemistry and therefore considered for the time being as a whole, they may be seen to constitute an average total of 11,333 and 5878 lines in college and high school texts, respectively, these being 41.35 and 37.34 per cent of the total content. The *theoretical portions of the college texts can thus be said to exceed those of high school texts by 4 per cent*—an appreciable, but hardly extraordinary, difference.

A comparison of illustrations.—Corroboratory testimony of some value on the extent of similarity and difference of high school and college texts is yielded by a comparative study of the illustrations (engravings) to be found in them. The number of illustrations in each of the texts represented in this study is as shown in Table CLXXXI. The chief fact apparent here is that, although there is considerable variation from text to text, the average number in the two groups is almost identical.

TABLE CLXXXI

NUMBERS OF ILLUSTRATIONS IN EACH OF TWO COLLEGE AND THREE HIGH SCHOOL TEXTBOOKS

TEXT	NUMBER OF ILLUSTRATIONS
I	180
II	138
III	170
IV	99
V	223
COLLEGE MEAN	159
HIGH SCHOOL MEAN	164

The results of the study of the extent of identity and difference is provided in Table CLXXXII. For this tabulation illustrations were regarded as the same if they portray similar apparatus and are used to convey the same principle or idea. The frequency and place of appearance are as indicated in the left-hand column. The numbers of illustrations for each of these frequencies are shown in the next column. The two remaining columns represent an effort to arrive at a basis for computing the proportion of overlapping. For instance, the 41 illustrations to be found in *all* texts, both college and high school, are assumed to have an average overlapping value of the same number. The 16 illustrations found in both college texts and two high school texts have an overlapping value of that number for the former and only two thirds of that number for the latter. The total of values weighted in this manner common to both college and high school texts is seen to be 106 and 96 1/3, respectively. The total values when illustrations peculiar to each of the two groups of texts are added, are 159 and 164,

respectively. As 106 is 66 2/3 per cent of 159, it appears that the overlapping illustrations make up this percentage of those appearing in college texts. Likewise, as 96 1/3 is 58.7 per cent of 164, it may be said that the overlapping illustrations constitute this percentage of those appearing in high school texts. In other terms, *the overlapping illustrations include roughly three fifths and two thirds of all those appearing, respectively, in the college and high school texts analyzed.*

TABLE CLXXXII

OVERLAPPING OF ILLUSTRATIONS IN COLLEGE AND HIGH SCHOOL TEXTBOOKS IN CHEMISTRY

FREQUENCY AND PLACE OF APPEARANCE	NUMBER OF ILLUSTRATIONS	WEIGHTED OVERLAPPING VALUE FOR	
		College Texts	High School Texts
In 2 college and 3 high school texts	41	41	41
In 2 college and 2 high school texts	16	16	10 2/3
In 2 college and 1 high school texts	11	11	3 2/3
In 1 college and 3 high school texts	8	4	8
In 1 college and 2 high school texts	31	15 1/2	20 2/3
In 1 college and 1 high school texts	37	18 1/2	12 1/3
In 2 college texts only	27	27	..
In 1 college text only	52	26	..
In 2 high school texts only	37	..	24 2/3
In 1 high school text only	129	..	43
TOTAL COMMON TO BOTH	144	106	96 1/3
TOTAL IN COLLEGE TEXTS ONLY	79	53	..
TOTAL IN HIGH SCHOOL TEXTS ONLY	166	..	67 2/3
TOTAL DIFFERENT ILLUSTRATIONS	389	159	164

III. COMPARISON OF HIGH SCHOOL AND COLLEGE LABORATORY MANUALS

Relation of the manual to the laboratory content of the course.—As the textbook dominates the classroom content of the college and high school courses in chemistry, so the manual used determines the laboratory activities. This may be seen in the fact that 34 of the 41 colleges report no manuals supplementary to the one accompanying the text. For the 7 listing such supplementary manuals, the additional exercises—at most a few in number—are in qualitative analysis. Twenty of the 26 high schools report no supplementary manual. Where exercises are added they are in the nature of "everyday" problems.

In almost all instances the manual intended to accompany the textbook reported is the one used. On this account only the manuals accompanying the five texts upon which report has been made were analyzed for the current study. They will be designated here by Roman numerals corresponding with those assigned the texts by the same authors.

The results of the analysis.—A table showing the number of lines and the percentage of space devoted to each of a total of ninety-nine experiments in each of the five manuals under consideration was compiled for this portion of the study but is not reproduced here, first, in order to economize space and, second, because it is not impossible to give some notion of the extent of overlapping by employing briefer means. Illustrative of the long list of experiments are those bearing the following names: chemical change, manipulation (glass), oxygen, hydrogen, distillation, nitrogen, analysis of air, solubility, neutralization, displacement, ammonia, nitric acid, sulphur, hydrogen sulphide, sulphides, sulphur dioxide, sulphuric acid, sulphates, fluorine, chlorine, hydrochloric acid, chlorides, carbon, carbon dioxide, sugars, starch, phosphorus, arsenic, potassium, hard water, magnesium, zinc, baking powder, borax tests, electrolysis of water, etc.

In further brief description it may be said, that of the total of 99 experiment titles appearing in the five manuals, 79 are to be found in Manual I, and 85 in Manual II, or an average of 82 in these college manuals. Manual III, the first of the high school group, contained 88; Manual IV, 73; and Manual V, 66. This gives an average of 75 2/3 for the high school group, or only 6 1/3 less than the college average.

A full comparison, if made, would need to include an analysis of the kind and number of what may be termed subexperiments to be found in these manuals. As time was not available for such an extension of the present study, the extent of difference along this line was ascertained in a few fields only, one of which, sulphur, is used here to illustrate the situation. In the names of experiments given above are six involving sulphur and sulphur compounds. Each of these except sulphides is represented in all manuals, the experiment with sulphides not appearing in one of those prepared for college use. However, the college manuals contained in this group of experiments an average of 40 1/2 portions which may be referred to as subexperiments, while the high school manuals contained an average of 23 1/3 subexperiments only. This illustration gives ground for the belief that, although there is much overlapping in the larger features and content of the experiments introduced, the more extended detail in the college manuals means a more thoroughgoing experimental exploration of the fields represented.

The large extent of overlapping in these manuals is re-emphasized in Table CLXXXIII, which is based upon the table of main experiment heads already referred to as being too extended to justify reproduction in this report. This table, except that it is somewhat more complex, is organized similarly to Table CLXXXII which presents the facts concerning overlapping of illustrations in the textbooks proper. It is to be interpreted as follows: Manual I devotes a total of 3194 lines, or 71.70 per cent of all the space in the volume, to experiments included in (see left-hand column)

TABLE CLXXXIII

Overlapping of Content in College and High School Laboratory Manuals in Chemistry

Number of Manuals		Content of Laboratory Manuals Found In										Average Overlapping Value For			
		Manual I		Manual II		Manual III		Manual IV		Manual V		College Manuals		High School Manuals	
College	High School	Lines	Per cent	Lines	Per cent	Lines	Per cent	Lines	Per cent	Lines	Per cent	Lines	Per cent	Lines	Per cent
2	3	3194	71.70	5025	73.48	2470	64.63	3210	69.76	3969	68.67	4110	72.59	3216	67.69
1	3	156	3.51	...	...	137	3.57	124	2.69	255	4.61	78	1.76	172	3.62
1	3	...	...	480	7.01	431	11.27	599	13.02	947	17.04	240	3.50	659	13.78
2	2	525	11.75	617	9.03	304	7.95	337	7.32	...	...	571	10.39	214	5.09
2	2	69	1.56	106	1.54	60	1.57	...	...	138	2.50	88	1.55	66	1.36
2	1	19	.42	29	.42	...	...	...	...	132	2.38	24	.42	44	.79
2	1	67	1.51	46	.68	...	...	51	1.11	...	...	57	1.10	17	.37
2	1	315	7.06	475	6.97	233	6.09	...	...	...	...	395	7.02	78	2.03
1	1	59	1.32	...	...	20	.52	...	...	...	...	30	.66	7	.17
1	1	...	...	11	.16	35	.92	...	...	...	...	6	.08	12	.31
2	0	39	.87	41	.59	...	...	...	...	...	...	40	.73	...	...
1	0	13	.28	...	...	...	...	...	...	...	...	7	.14	...	...
1	0	...	...	10	.14	...	...	...	...	...	...	5	.07	...	...
0	3	...	...	...	...	10	.26	84	1.83	53	.95	...	...	49	1.01
0	2	...	...	...	...	14	.36	167	3.62	...	...	...	...	60	1.33
0	2	...	...	...	...	...	...	30	.65	61	1.09	...	...	30	.58
0	1	...	...	...	...	110	2.88	...	...	...	...	...	...	37	.96
0	1	...	...	...	...	...	...	...	...	150	2.70	...	...	50	.90
Totals in both groups		4404	98.83	6789	99.29	3690	96.52	4321	93.90	5441	95.20	5599	99.07	4485	95.21
Totals in college manuals only		52	1.15	51	.73	...	...	...	...	...	...	52	.94	...	...
Totals in high school manuals only		...	...	...	...	134	3.50	281	6.10	264	4.74	...	...	226	4.78
Grand Totals		4456	99.98	6840	100.02	3824	100.02	4602	100.00	5705	99.94	5651	100.01	4711	99.99

both college and all three high school manuals; Manual II devotes 5025 lines, or 73.48 per cent, to the same materials, etc. The next line of figures signifies that Manual I devotes 156 lines, or 3.51 per cent, to materials found in one college manual and all three high school manuals, etc. It is to be noted that the left-hand portions show the facts concerning overlapping for each manual included in the study, while the last four columns show the average overlapping values for each of the two groups of manuals.

A remarkable degree of overlapping is shown first in the large numbers of lines and percentages of common materials found in both of the college and all three of the high school manuals. The average percentages turn out to be 72.59 for college and 67.69 for high school experiments. When to these amounts and percentages are added those of experiments found in both groups but not in each text of both groups, the totals mount to almost all the exercises, roughly 99 and 95 per cent for the two groups of manuals, respectively. This leaves only about 1 and 5 per cent, respectively, peculiar to college and to high school manuals. The larger per cent of materials distinctive of the high school manuals arises out of the desire to emphasize the "practical" in the experiments, as well as to make the course more general by introducing simple experiments in the organic field. Even when any conclusion drawn is qualified by the fact of the larger number of subexperiments introduced in the college manuals, it must admit that the laboratory portions of college and high school courses in chemistry resemble each other vastly more than they differ—that they cannot be far from identical in major aspects.

IV. Quantitative Differences between College and High School Courses

In materials for comparison so far presented it has occasionally appeared that there tend to be *quantitative* differences between college and high school textbooks and courses. It is desirable to make some special study of such differences, and to this end the facts concerning the items in Table CLXXXIV have been compiled. The first of these concerns the total amount of textual and supplementary reading required during the courses in college and high school. The range in total amount is seen to be very wide in the courses as administered in both units of the school system. As to first and third quartiles and the medians, there are rather consistent although not striking differences in favor of the college courses. These differences take on a more definite meaning when the amounts read are reported in terms of the numbers of pages per clock hour of recitation and lecture in the courses represented. As these pages have not been weighted for correction and as the pages in college materials exceed in content those in high school materials, it may be assumed that an amount not to exceed

ten per cent may be added to the college figures for all measures under Item 2 (as well as 1, 3, and 4). This finds some difference in favor of the college courses in the amount covered per unit of instructional time. Items 3 and 4, far from as significant in determining relative difficulty of the courses, show data rather generally favorable to the high school. In evaluating these quantitative differences the reader should bear in mind that the high school course constitutes usually but a fourth of all the work taken by a student during a single school year, while the college course constitutes a third.

TABLE CLXXXIV

COMPARISON OF COLLEGE AND HIGH SCHOOL COURSES IN CHEMISTRY IN CERTAIN QUANTITATIVE RESPECTS

ITEM FOR COMPARISON	COLLEGE	HIGH SCHOOL
1. Pages of text and supplementary reading		
a. Minimum	416	426
b. First quartile	660	570
c. Median	720	656
d. Third quartile	1036	910
e. Maximum	3283	2788
2. Pages per 60-minute hour of recitation or lecture		
a. First quartile	6.7	6.7
b. Median	9.2	7.9
c. Third quartile	11.2	11.5
3. Pages of instructions and reading for laboratory		
a. Minimum	100	95
b. First quartile	133	150
c. Median	158	178
d. Third quartile	190	204
e. Maximum	206	233
4. Pages per 60-minute hour of laboratory		
a. First quartile	.89	1.4
b. Median	1.2	1.7
c. Third quartile	1.4	2.4
5. Average number of topics per text	306.5	261.3
6. Average number of lines per topic	90.0	60.7

The figures reported for Items 5 and 6 revert again to the five textbooks upon which report was made above. The former indicates the average number of different "topics" dealt with in these texts, the term topic here being used in the identical sense in which it was used in the comparison of high school and college texts. It may be recalled that topics there referred to each common element, each rarer element, each "process," each law, etc.,

treated in the volume under consideration. Following this method of counting there are, e.g., an average of 35 topics in the college texts under the head of common elements and of 21 of the rarer elements and, on the other hand, an average of 35 and 6, respectively, in the high school texts in these two large divisions. *This comparison finds the average college text containing the treatment of approximately a sixth more topics than the high school texts. The last item in the table shows a difference of almost 30 lines in the average extent of treatment of these topics, a difference which amounts to about 50 per cent of the average treatment in high school texts.* The difference last referred to requires no correction for differences in numbers of words per line.

V. Further Comparisons of High School and College Courses

Method.—The results of a compilation of responses to an inquiry as to the numbers of class (not including laboratory) periods devoted to lecture, quiz, and recitation show both similarities and differences of procedure. The median numbers of periods of lecture in conducting high school and college courses are, respectively, 20 and 49—more than twice the number in the latter as in the former. On the other hand, half of both groups—50 and 46 per cent, in fact—report *no* use of the lecture method. The median number of periods of quiz is the same in both institutions—18. However, more colleges than high schools report the use of this method. The median numbers of recitation periods are 75 and 36, showing approximately twice the number in high school as in college. Almost half the colleges report no use of this mode of classroom procedure. Summarized, the differences are those of more lecture and quiz and less recitation in college than in high school, while at the same time there is much overlapping of procedure as well as of content.

A half of the high schools require the presentation of special reports, while only an approximate fourth of the colleges make such a requirement. In both college and high school where used, the report is more frequently oral than written. Other forms of class exercise such as problems, projects, visits to industries, etc., are not common in either unit, but are more often resorted to in high school than in college.

Size of sections.—The size of recitation sections does not differ widely as to the median, this being 21 and 25, respectively, in high school and college. The upper range is higher for the college, running as high as a maximum of 100 students. The median lecture sections contain 20 and 30 students. Except for a small proportion of colleges and universities the recitation and quiz sections are kept to a number not much larger than the high school recitation groups. This promises something like the same extent of class contact between instructor and student in college as in the high school.

VI. Opinions As to Differences between College and High School Courses

In view of the similarities and differences between college and high school courses reported up to this point some interest should attach to a summary of the opinions of the instructors responding on the score of the differences that they believe (a) *exist* or (b) *should exist*. All instructors were given an opportunity to express themselves on this point with the result shown in Table CLXXXV. In assembling the materials for this table no distinction has been made between the statements of college and of high school instructors for the reason that no notable differences in tendency were apparent in the opinions of the two groups represented.

TABLE CLXXXV

Numbers and Percentages of Sixty-Seven Instructors Believing Certain Differences to Exist or Should Exist between College and High School Courses in Chemistry

Nature of Difference	Believed To Exist		Should Exist	
	Number	Per Cent	Number	Per Cent
1. More material in college course	30	44.8	25	37.3
2. More detail in college course.....	18	26.9	14	20.9
3. More theory in college course	34	50.7	26	38.8
4. College course more advanced	..	..	16	23.9
5. Practical aspects stressed more in high school course	..	..	12	17.9
6. Method	15	22.4	..	..
7. No difference.....	1	1.5	3	4.5
8. No answer	8	11.9	16	23.9

The differences in content are comprehended by Items 1-5. The first three of these, more material, more detail, and more theory in the college course, are each believed to obtain and are regarded as desirable of achievement by large proportions of instructors. The proportions are especially large for the first and third. It is worth noting (Item 4) that while a considerable proportion recommend that the college course be more advanced, no one volunteers a belief that it *is* so, unless it was intended to convey this opinion under one of the other heads. Almost as large a proportion urge that the high school courses stress more than the college courses the more practical aspects. In Item 6, involving methods of presentation, we have an instance of a tendency of opinion opposite to that pointed out for Item 4; while almost a fourth of the group believes there is a difference of method, no one seems to propose that it should exist. A small number believe that no difference exists or should exist.

The reader has doubtless already noted that almost all these opinions have the support of the facts of practice as given in earlier portions of the current chapter. While the college and high school courses have much in common, in fact, move toward identity, there is more material, more detail, more theory in the former, while the latter, through having larger proportions devoted to *uses* of elements and compounds, make more of practical aspects. We have noted, also, a tendency to difference in method between courses in college and high school.

VII. Recapitulation and Conclusion

The titles of high school and first college courses in chemistry, although not always identical, anticipate much in the way of overlapping of one upon the other. The same may be said for the time requirements, even as to the proportions in the classroom and in the laboratory, as well as for the predominant classification of students which is as nearly identical as possible, being high school seniors and college freshmen.

It is not surprising, therefore, that the analysis of the texts used—these texts representing courses rather faithfully because courses infrequently deviate from them either by omission or addition—shows that the courses, although they differ to some extent, have much more in common than they have distinctive. Because treatments are almost generally more extended in college texts, there are more differences in *amounts* than in *proportions* of space devoted to the several subdivisions. The subdivisions emphasized by notably larger portions of total content in college are compounds, rarer elements, and principles, whereas those receiving more emphasis in high school are uses of elements and compounds, organic compounds, and the pedagogical devices of questions and summaries. However, all divisions are recognized in both high school and college courses. This interpretation of the large extent of community of content is corroborated by the extent of identity of illustrations in high school and college texts.

The laboratory portions of the courses have as much or more in common as the more strictly classroom portions. The essential difference seems to be not so much in the number nor in the nature of the experiment topics found in the manuals as in the number of subexperiments introduced, suggesting a somewhat more thoroughgoing extent of experimentation in college than in high school.

Most of the measures of extent of materials covered favor the college courses. These have a larger total amount of reading in connection with classroom work, a somewhat but not strikingly larger number of pages per clock hour of class work, a larger number of topics dealt with, and a larger number of lines per topic. The exception is in the amount of material to be read in connection with laboratory exercises, which may be regarded as a minor factor, especially as college courses contain more subexperiments.

Methods used, although overlapping, show more use of the lecture and quiz in college and more recitation in high school. Median class sections do not differ widely, although the upper range is larger for college than for high school.

Opinions as to differences between high school and college courses are fairly well supported by the facts of practice.

The conclusion is obvious, that, although there are some differences between high school and first college courses in chemistry, they are remarkably alike. Consequently, *if the materials presented in high school courses may be presumed to be secondary in character, there is relatively little in these first college courses not purely secondary.* Moreover, *if a student takes the course in general inorganic chemistry in college after having had the high school course, which is often done, he is repeating almost all of it.* Even in that relatively small proportion of higher institutions where such a student enters upon a course in general inorganic chemistry presumed to be administered for those who offered the high school unit for admission,[7] there must be a large amount of repetition.

Before passing on to illustrate overlapping in the field of the social studies it is desirable to comment on the probable degree of representativeness of the situation as just described for other fields of science, such as botany, zoology, or physics. It has already been pointed out that the situations in these fields differ to some extent from that in chemistry for such reasons as the following: that the high school courses in the first two subjects named are more commonly given in the earlier than in the later years of the high school, and that they are not infrequently presented as half-unit courses; that the college course in physics is more often postponed until the student has had a course in trigonometry and it is thus more often a sophomore than a freshman college subject, being longer removed from the high school course more commonly taken by seniors in that unit. These situations doubtless mitigate to some extent any evils of overlapping or of repetition, but they cannot remove them sufficiently to warrant not giving consideration to means of obviating the duplication.

[7] See Chapter XXVIII.

CHAPTER XXXIV

OVERLAPPING IN AMERICAN HISTORY

I. Preliminary Considerations

The field and schools represented.—The courses compared in this chapter are those given in the high school usually bearing the title "History of the United States" or "American History" and first college courses in the same field.

The high schools and colleges approached for information concerning their courses were selected in the same manner as reported in preceding chapters dealing with overlapping in particular subjects. Returns usable in part or as a whole came from 26 high schools in the following states: Illinois, 4 schools; Indiana, 6; Iowa, 6; Minnesota, 4; Ohio, 3; Wisconsin, 3. The total number of colleges and universities represented is two more than high schools, the distribution being as follows: Colorado, 2; Illinois, 4; Indiana, 4; Iowa, 3; Kansas, 1; Michigan, 1; Minnesota, 3; Missouri, 2; Nebraska, 2; North Dakota, 1; Ohio, 3; and South Dakota, 1. Of these, three are recognized as universities, the remainder being colleges.

The classification of students taking the courses.—The answers to the question put to instructors as to what is the predominant classification of students taking the courses have been assembled in Table CLXXXVI. It appears that the place of the high school course has been well standardized, 16 of the 25 answers made indicating that it is taken primarily by seniors; 8, by juniors and seniors; and 1 only, by sophomores, juniors, and seniors. The college course seems not yet to have found a year on which there is as large an extent of agreement as in the lower school. If the total frequencies with which each class is represented in the college data are obtained, we find the following: freshmen, 8; sophomores, 22; juniors, 17; seniors, 11. These figures indicate that for these colleges the first course in American history is most often a sophomore subject, being taken predominantly to a somewhat less extent by juniors, seniors, and freshmen with the declining order as here given. The fact that juniors and seniors often constitute the major portions of the classes should not be lost sight of in interpreting the similarities and differences reported in subsequent portions of this chapter. It may be said in summary on this point that students taking the high school and college courses here reported upon are usually at least two school years apart in classification and somewhat less frequently but not uncommonly three and four years apart.

Total clock hours of time in the courses.—The high school courses from the standpoint of duration fall into two main groups, those extending through one, and those extending through two, semesters. The average

numbers of clock hours of class time devoted to the courses in these groups and to courses in colleges are, respectively, 69.1, 139.4, and 91.9. Thus, somewhat more time is assigned to college courses than to the semester courses in high school, but the average for the full-year course in high school exceeds the college average by more than 50 hours. The ranges of the three groups of courses are, respectively, 60 to 91.6, 100 to 200, and 80 to 132. The maxima and minima for the college courses are likewise between those for the two groups of high school courses.

TABLE CLXXXVI

PREDOMINANT CLASSIFICATIONS OF STUDENTS TAKING COURSES IN AMERICAN HISTORY IN HIGH SCHOOL AND COLLEGE

PREDOMINANT CLASSIFICATION OF STUDENTS	NUMBER OF INSTITUTIONS	
	High Schools	Colleges
1	..	1
2	..	4
1, 2	..	5
2, 3	..	6
4	16	..
3, 4	8	4
1, 2, 3, 4	..	2
2, 3, 4	1	5
TOTALS	25	27

II. THE TEXTBOOKS AND THE COURSES

The proportion the text is of the course.—As one approach to description and comparison of courses in American history in high school and college is a study of the content of textbooks used, it is desirable first to know the proportion of the courses represented by these textbooks. This has been computed for as many schools and colleges as provided full data concerning the reading requirements of the courses, inclusive of textbooks, and prescribed and optional references. For this purpose pages were reduced to comparable bases. Next were computed the percentages which the texts were of the total reading required for each course.

While the numbers of institutions on which complete data concerning all required readings were at hand are less than the total numbers represented in other portions of this study, the data given in Table CLXXXVII are not without significance. They make clear what is to be expected, that half-year courses in high school tend to be more largely constituted of the textbook than courses extending through the full school year, the average percentages being, respectively, 60.2 and 44.6. They indicate also that college courses are even less dependent on the text alone than are full-year

high school courses. Also, high school courses show a wider range of degree of dependence, even the year courses touching almost the full range of possibility—actually 9.4 and 100 per cent in the two cases at the extremes.

TABLE CLXXXVII

PERCENTAGES WHICH THE TEXTBOOKS ARE OF THE READING CONTENT OF HIGH SCHOOL AND COLLEGE COURSES IN AMERICAN HISTORY

PER CENT	NUMBER OF COURSES		
	High School		College
	One semester	Two semester	
0.1- 10.0	..	1	..
10.1- 20.0	..	..	2
20.1- 30.0	1	1	4
30.1- 40.0	..	4	4
40.1- 50.0	3	3	3
50.1- 60.0	..	3	1
60.1- 70.0	1	..	..
70.1- 80.0	2	..	..
80.1- 90.0	..	..	..
90.1-100.0	1	1	..
TOTAL COURSES	8	13	14
AVERAGE PER CENT	60.2	44.6	32.8

Omitted materials.—One consideration of some importance in determining the relation of the textbook to the course is the extent and character of portions omitted while the latter is in progress. Special inquiry was made on this point. The responses indicate little deviation of this sort, either in high school or college. One high school instructor who teaches a half-year course reports the omission of all materials dealing with the period prior to 1789 and those describing the campaigns of the War of 1812, Mexican War, and Civil War. Two others teaching full-year courses also report omissions of materials descriptive of military campaigns. Three of the instructors of college courses mention omitting materials dealing with the earlier period, e.g., up to 1789. Other than this there is no tendency, except to make *no* omissions, as the portions named by the four additional instructors reporting exclusions are all different and not extended. It may be said in summary on omissions that textbooks are utilized *in toto*, with a slight tendency in high schools to omit materials on military campaigns and in colleges, materials dealing with the earlier period.

Numbers of texts used.—Of the 25 high schools represented in the study, 3 report the use of 2 texts, all others reporting a single text. Colleges report

more than one text with much greater frequency than do high schools. Fifteen, or somewhat more than half the higher institutions, use a single volume, 3 report 2, 6 report 3, and 1 only reports 4. Two colleges report that no text is used. As will be seen later, these are not always textbooks in the strict sense, but we may judge from the manner of reporting that they are so used. It appears that although the college courses sometimes resort to two or three volumes as textual material, the predominant practice is to use a single text, as does the high school.

The volumes reported as textbooks.—The volumes which are reported by instructors as being in use as textbooks in high school and college, respectively, are listed, with their frequencies of mention in Tables CLXXXVIII and CLXXXIX. The latter does not show that texts are not being used in two college courses, the readings being exclusively in reference lists. A glance down the titles in the former will show that all volumes named are of a type designed to cover the full period of the history of the country. This seems not to be as characteristic of the textual materials of college courses, as they tend to utilize works covering special periods or phases of history. This tendency is in harmony with the practice in less than half the schools as reported above of using more than a single volume as the textual basis of the college course. Nevertheless, it should be kept in mind that the one work by far the most frequently reported and at least two others are textbooks comprehending the whole period of American history. In many instances where two or more texts are reported for college courses they are volumes dealing with different periods, the result being textual content comprehending history from discovery or some other earlier time to the present day.

TABLE CLXXXVIII

VOLUMES REPORTED AS TEXTBOOKS IN TWENTY-FIVE HIGH SCHOOL COURSES IN AMERICAN HISTORY AND THEIR FREQUENCY OF USE

VOLUME	FREQUENCY
Channing, Students' History of the United States	1
Fite, History of the United States	5
Forman, Advanced American History	7
Hart, New American History	1
McLaughlin, History of the American Nation	2
Muzzey, American History, 1917	3
Muzzey, American History, 1920	7
Thompson, History of the United States	2

TABLE CLXXXIX

VOLUMES REPORTED AS TEXTBOOKS IN TWENTY-FIVE COLLEGE COURSES IN AMERICAN HISTORY AND THEIR FREQUENCY OF USE

VOLUME	FREQUENCY
Bassett, Short History of the United States	14
Becker, Beginnings of the American People	3
Bolton and Marshall, Colonization of North America	1
Dodd, Expansion and Conflict	5
Elson, History of the United States	1
Fish, American Diplomacy	1
Fish, Development of American Nationality	2
Forman, Advanced American History[a]	1
Hart, Formation of the Union	3
Haworth, United States in Our Own Times	1
Johnson, Union and Democracy	4
Lecky, American Revolution	1
Lingley, Since the Civil War	2
Thwaites, Colonies	2
Wilson, Division and Reunion	2

[a] A high school text.

Analysis of the textual content by periods.—Before presenting the results of an analysis by periods of the materials reported as texts it will be pertinent to direct attention to a comparison of high school and college courses on the basis of responses to a request to instructors to indicate the extent of the total period covered. This comparison is facilitated by Table CXC. It may be seen that the almost universal practice in the high schools from which reports have come is to endeavor to cover the entire period of American history from the period of discovery to the present time. This is also by far the most common practice in colleges, although the latter show a notable tendency to abbreviate the period studied. This curtailment is more often accomplished by ignoring the earlier, than the more recent, history. In point of fact, ten college courses omit earlier while only four omit later portions. There is little or no agreement as to the date at which to begin these shortened periods.

Analysis of the textual materials of the courses represented involved ascertaining the number of equated pages of volumes reported as textbooks assigned to each of nine periods into which American history was divided for the purposes of this aspect of the study. These periods are listed in Table CXCI. Owing to the chronological organization of most books reported as texts, this distribution to periods was not especially difficult to obtain, although in some instances the analysis in this way was not without its perplexities. The problem for courses in which more than a single volume was reported was in no important sense different from that where

textual readings were thus limited, as it involved merely ascertaining the total number of pages in each period in whatever works the reading was required to be done. From these numbers of equated pages for each period the total textual readings of the courses were obtained, and on the basis of these totals, the percentages in each period for each course computed. The averages of these numbers and percentages of pages for twenty-five high school and the same number of college courses are reproduced in Table CXCI.

TABLE CXC

PERIODS COVERED BY HIGH SCHOOL AND COLLEGE COURSES IN AMERICAN HISTORY

PERIOD COVERED	NUMBER OF INSTITUTIONS		
	High School		College
	Half year	Full year	
1. Period of Discovery[a] to present ..	10[b]	15[c]	14
2. Period of Discovery through Reconstruction	..	..	1
3. Colonization to present	..	..	1
4. Colonization through Civil War ..	..	..	1
5. Pre-Revolutionary Period to present	..	..	2
6. Pre-Revolutionary Period to Civil War	..	..	1
7. Conclusion of Revolutionary War to present	..	..	1
8. Conclusion of Revolutionary War to Spanish American War	..	..	1
9. Ratification of Constitution to present	1	..	3
No answer	..	..	2
TOTALS	11	15	27

[a] Usually indicated as 1492, but sometimes from about the middle of the fifteenth century.
[b] Two report the opening date at 1000.
[c] One of these to 1900 only.

The average number of pages in each period for college courses is seen to exceed those for high school courses. This difference is reflected in the total number of pages to be found at the foot of the table. The percentage distributions shown in the table (CXCI) and in Figure 90, however, show a rather remarkable similarity. The high school courses contain slightly larger percentages for the three earliest periods, and this might lead to the conclusion that there is a relatively larger trend of emphasis on earlier portions in the institutions concerned, were it not for the contrasting fact of greater emphasis on the period 1812-61 in the courses in the lower school. Addition of the percentages for the first five periods, i.e., through the Revolution, shows 29.4 for high schools and 27.1 for colleges. The difference is so small as to argue similarity much more than dissimilarity.

TABLE CXCI

AVERAGE NUMBERS OF PAGES AND PERCENTAGES OF TEXTUAL MATERIAL IN TWENTY-FIVE HIGH SCHOOL AND TWENTY-FIVE COLLEGE COURSES DEVOTED TO EACH PERIOD OF AMERICAN HISTORY

PERIOD	HIGH SCHOOL		COLLEGE	
	Number of Pages	Per Cent	Number of Pages	Per Cent
1. Discovery and Exploration	23.5	5.3	36.7	4.4
2. Colonial development	56.6	12.8	88.5	10.7
3. Colonial wars	11.4	2.6	16.1	1.9
4. Pre-Revolutionary	21.7	4.9	45.1	5.4
5. Revolutionary	16.6	3.8	38.9	4.7
6. 1783-1812	44.0	10.0	92.3	11.1
7. 1812-61	117.0	26.6	187.0	22.6
8. Civil War	30.1	6.8	64.2	7.7
9. 1865-1922	119.6	27.2	260.4	31.4
TOTALS	440.5	100.0	829.2	99.9

It should be kept in mind, however, that these averages have some tendency to conceal the situation for those colleges above referred to in which the earlier periods are entirely neglected. Another factor that argues greater variability as to emphasis in college than is shown by averages is the larger proportion which non-textual readings constitute of the total readings in the courses. Within these larger amounts and proportions of readings not accounted for in this analysis the instructor could stress certain periods and thus give less attention to others. This is, however, within a more restricted range, possible also in high school courses, and there is little in this study to lead one to believe that high school instructors would not tend to stress or disregard the same periods as do college teachers. There seems to be no good reason for contending that these percentages are unrepresentative of the courses considered and denying the conclusion of a large extent of similarity for high schools and a majority of colleges.

Topical analysis of selected high school and college textbooks.—Another method of comparing high school and college textbooks in American history was that of distributing the content by large divisions and subdivisions irrespective of chronology. The four large divisions to which the textual materials were distributed are political, economic, social, and military. Although it is not always easy to designate materials as belonging under one and not others of these four main divisions, it is believed that, if other investigators undertook a similar analysis of identical materials, the results would not differ widely from those presented in Table CXCII. Only the most used texts were so analyzed, these being the two editions of Muzzey, Forman, and Fite of those reported by high schools, and Bassett only of those reported by colleges.

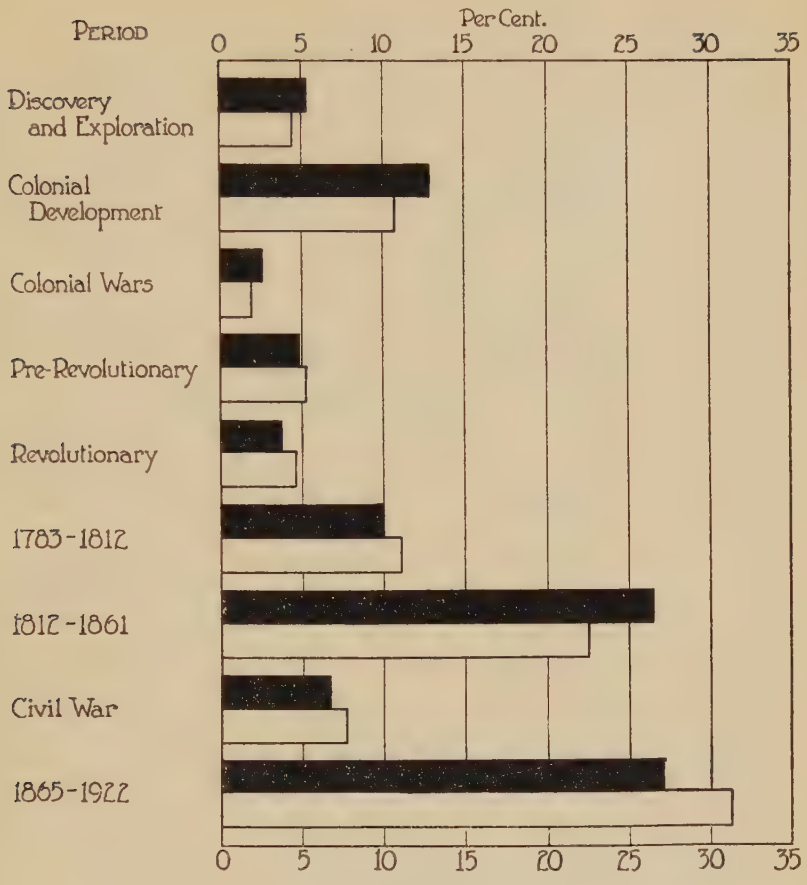

Figure 90

Average percentages of pages of textual materials in 25 high school and 25 college courses devoted to each period of American history (black, high school; in outline, college)

As is to be expected the two editions of Muzzey show approximately the same numbers of pages and percentages in each of the four divisions. Forman stresses the political somewhat less and the economic somewhat more than Muzzey, while Fite deviates from the former particularly in containing a smaller proportion of military materials. The averages for the four high school texts show slightly less than three fifths in the political division and approximately one fifth, one tenth, and one eighth, respectively, in the economic, social, and military portions.

TABLE CXCII

PAGES AND PERCENTAGES OF SELECTED HIGH SCHOOL AND COLLEGE TEXTBOOKS DEALING WITH THE FOUR MAIN PHASES OF AMERICAN HISTORY

PHASE	HIGH SCHOOL										COLLEGE	
	Muzzey 1917		Muzzey 1920		Forman		Fite		Average		Bassett	
	Pages	Per cent	Pages	Per cent	Pages	Per cent	Pages	Per cent	Pages	Per cent	Pages	Per cent
Political	260.3[a]	60.6	256.6	62.9	207.9	51.4	188.9	58.7	229.3	58.4	478.4	56.4
Economic	71.8	16.7	71.6	17.5	107.4	26.6	77.7	24.1	82.8	21.1	135.3	15.9
Social	36.9	8.6	18.2	4.5	39.4	9.8	24.6	7.7	29.8	7.6	67.6	8.0
Military	60.4	14.1	62.0	15.2	49.0	12.1	30.5	9.5	50.5	12.9	167.9	19.8
TOTALS	429.4	100.0	408.4	100.1	403.7	99.9	321.7	100.0	392.4	100.0	849.2	100.1

[a] On the basis of Muzzey, 1920.

A comparison of the figures for the average high school text with Bassett shows more than double the total amount of high school material in the college text, with large excesses of numbers of pages in each division. The percentage distribution is, however, remarkably similar, the essential differences being a smaller proportion of economic and an interestingly larger proportion of military materials in the latter.

As it would be impracticable on account of the amount of space involved to reproduce here the tabular results of the analysis by subdivisions, resort will be taken to illustration only.

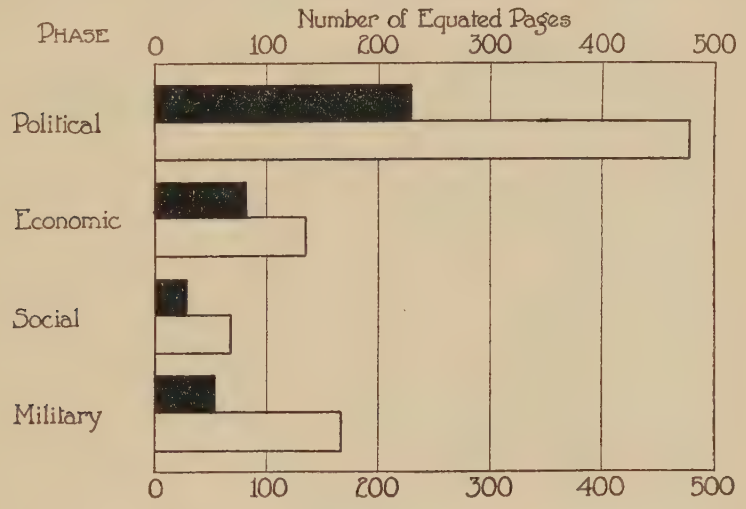

Figure 91

Numbers of equated pages of high school and college textbooks dealing with four main phases of American history (black, high school; in outline, college)

The total number of subdivisions, which were arrived at during the process of analysis (and not assumed and then sought in the texts), is 82. Of these 7 are represented in high school texts only and 2 in the college text only. The remaining 73 are found in both, another fact which argues the similarity of texts on high school and college levels.

Of the subdivisions under political to which the high school texts give greater proportionate attention are nationalism and nationalization, problems of state government, new states and territories, political aspects of slavery, and biography, while the college text emphasizes colonial political revolution, foreign affairs, politicians and political parties, elections, the judicial system, and problems of reunion. Under economic the high school texts stress industry and invention, pictures of economic life, history and problems of labor, and attempts to change the present economic order, while

Bassett emphasizes to somewhat greater extent speculation, political control of economic life, and development and conservation of natural resources. Among the social subdivisions emphasized more by the high school texts are ethical and moral movements against slavery, public welfare, printing press and newspapers, pictures of frontier life, and American literature, whereas the college text enlarges upon Indian life, policy and influence, and the sociological aspects of war. As may be anticipated from what has already been said, the subdivisions of the military coming in for most attention in the college text are military and naval operations.

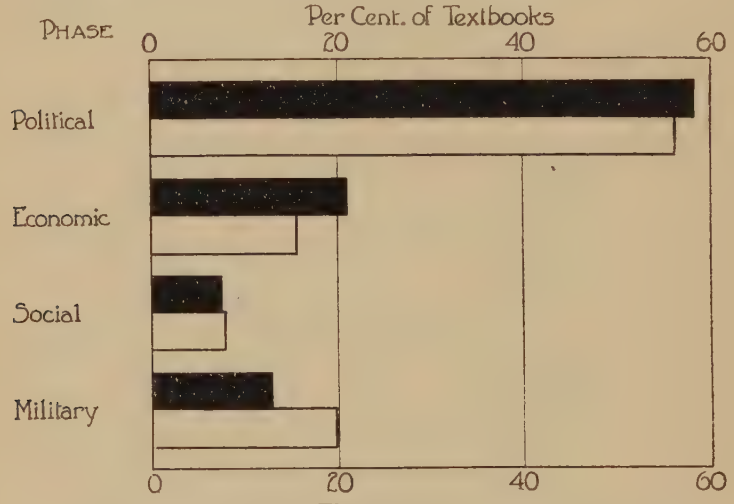

Figure 92

Percentages of high school and college textbooks dealing with four main phases of American history (black, high school; in outline, college)

It is difficult to discern in these illustrations much in the way of tendencies to distinction in content between the high school and college texts represented, other than the few already indicated. Perhaps the former lean somewhat toward the more concrete and the latter toward the more abstract and difficult topics, but this interpretation is not unequivocal, first, because at least a few of the illustrations suggest a converse conclusion, and, furthermore, because there are few of the subdivisions not appearing in both high school and college texts.

Other qualitative differences between high school and college textbooks.—As it was desirable to ascertain any further qualitative differences between high school and college texts, some effort was made, without attempting a large independent research to explore for these. Such a major investigation as could not be undertaken might have been a reading comprehension test of representative specimens from predominant high school and college texts.

The method used was one that can give only qualified assurance because of its limitations of a subjective sort, but the finding is nevertheless deserving of mention. Three investigators, two of whom had had some special training in American history, compared individually and as a group, the treatment of identical topics in the most used high school and college texts, Muzzey and Bassett. They were on the lookout for evidences of any qualitative differences of treatment. The differences discernible ran along two lines, the former much more common than the latter: (1) more extended treatment of many topics involving more detail and (2) the occasional assumption in the college text that the student is in possession of some principle, usually economic, required for understanding the discussion afforded in the text, whereas the high school text takes occasion to explain the principle. The first of these is merely another aspect of the quantitative differences already pointed out and becomes qualitative only when command of the additional detail is demanded, as is probably done in many courses. The second was deemed to be too infrequent to be of much significance in determining difficulty. The investigators agreed that, in so far as their predominant textual materials are concerned, there are no profound differences of a qualitative sort between courses on the two levels considered.

A difference of a somewhat qualitative character concerns the amount of space devoted to illustrations proper, not including maps. Only two works used as texts in college contained such materials, and one of these is usually used as a high school text. On the other hand, only two of the texts reported by high schools contain nothing of this kind. The average number of pages in Muzzey (1920) equivalents in the high school texts, is 48.2. These are in addition to the content shown in foregoing analyses.

Maps are to be found with equivalent proportionate frequency in both high school and college texts.

III. Reference Readings of the Courses in American History

The proportions of the courses composed of extra-textual reading.—In an earlier table (CLXXXVII) the average proportions of the total readings required in the course found in the textbook used turned out to be about three fifths for half-year and less than half for full-year high school courses, and about a third for college courses. This means that reference reading is usually an important constituent in all courses, although, of course, more important in the upper of the two units, being on the average about half the reading requirements of the high school courses and two thirds of those of the college courses. These readings are such a large constituent of the courses that some special consideration must be given them.

Overlapping of references.—It has not yet been stated that instructors were asked to report all work required in connection with the courses, inclusive of prescribed and optional reference readings. The names, authors,

and publishers of all works used were asked for, as well as the pages prescribed. A prescribed reference in the blank of inquiry was understood to be one required of all students, and an optional reference one of a number from which the student must make selection in order to meet the requirements of the course.

A total of 268 different works was found in the reading requirements listed by instructors of 26 high school and 27 college courses. Of this number, 109 were common to both high school and college lists, 88 were found in high school lists only, and 71 in college lists only. These figures mean that roughly two fifths of the titles are used to some extent in common, a third and a fourth, roughly, being distinctive of high school and college lists.

The 109 references which high schools and colleges use in common are reported a total of 372 times on high school and 451 times on college lists. This is a total frequency of 823 for the references the courses have in common. The 88 titles distinctive of high school lists are reported a total of 121 times and the 71 titles distinctive of college lists 85 times. The grand total of frequencies of all references in the 53 institutions represented is, therefore, 1029, the total frequency of references in common being 80 per cent of this number.

There should be no hasty conclusion that this represents the actual percentage of overlapping in the reference reading done by high school and college classes. Such a computation is not attempted on account of the excessive amount of time its completion would require. The figures given exaggerate the amount of actual overlapping because, as will be made apparent subsequently, the total amount of reading done in the college course far exceeds that done in the high school course. The high school in general assigns smaller portions of the works on the common list than does the college. The figures given mean primarily that courses in the institutions on these two levels do tend to use the same materials for reference reading and that these are, therefore, regarded to some extent as appropriate in content and difficulty for courses in both units of the school system.

Table CXCIII has been prepared to provide some detail of the study of titles listed as required reference material. It contains the 26 works found five or more times in either the high school or the college assignments and indicates the frequency with which each is required in high school and in college. It is interesting, in the first place, to note that 21 of the 26 works used are common to both high school and college lists. A second point of interest is the extent to which high school courses make use of other *texts* as reference material, e.g., Nos. 3, 6, 10, 24. This is also done in colleges, as witness Nos. 1, 3, 6, and some of the other works already reported as college texts in earlier portions of this chapter. Another significant fact is that other works are frequently used in both high school and college courses.

TABLE CXCIII

WORKS ON THE READING LISTS OF FIVE OR MORE HIGH SCHOOL OR COLLEGE COURSES IN AMERICAN HISTORY, WITH THE FREQUENCIES OF APPEARANCE

AUTHOR AND TITLE	HIGH SCHOOL	COLLEGE
IN BOTH HIGH SCHOOL AND COLLEGE		
1. Bassett, Short History of the United States	3	16
2. Bogart, Economic History of the United States	7	3
3. Channing, Students' History of the United States	6	7
4. Coman, Industrial History of the United States	5	2
5. Dodd, Expansion and Conflict	4	20
6. Elson, History of the United States	10	2
7. Fish, Development of American Nationality	2	7
8. Fiske, Critical Period in American History	7	6
9. Fiske, Discovery of America	9	2
10. Forman, Advanced American History	8	1
11. Hart, American History Told by Contemporaries	13	6
12. Hart, Formation of the Union	11	4
13. Hart, Source Book in American History	6	1
14. Lodge, Life of Hamilton	5	2
15. Lodge, Life of Webster	5	3
16. McDonald, Select Documents in American History	2	7
17. McMaster, History of the United States, Vol. 5	9	9
18. Roosevelt, Winning of the West	6	2
19. Schouler, History of the United States	4	7
20. Thwaites, Colonies	8	3
21. Wilson, Division and Reunion	12	7
IN HIGH SCHOOL ONLY		
22. Burgess, Civil War and the Constitution	5	..
23. Burgess, Middle Period	5	..
24. Fite, History of the United States	7	..
25. Hart, Slavery and Abolition	5	..
26. Stanwood, History of the Presidencies	6	..

IV. QUANTITATIVE REQUIREMENTS OF HIGH SCHOOL AND COLLEGE COURSES

The total reading requirements of high school and college courses.—It has already become evident in the foregoing portions of this chapter that there are differences of a quantitative sort between high school and college courses in American history favoring the latter. Because one important aspect of any complete description or comparison of courses has to do with quantitative relationships, attention will be directed here to two of these, (1) the total numbers of pages and (2) the number of pages per clock hour of instruction required in the courses being described.

A few preliminary words concerning the difficulties of obtaining the measures referred to will not be out of place. Not all instructors could or

would provide all the data necessary for the computations involved. If pages required in some volume were not indicated, the school reporting had to be left out of account. Such omissions reduced the number of cases somewhat, but, it is hoped, not to the point of unrepresentativeness.

Another comment touches the method of computing the totals of pages as shown in the tables. For this purpose, textual (exclusive of maps and illustrations) and extra-textual required references were totaled. The method of equating the textual readings was similar to that used in courses reported upon in other chapters in Part IV. It was impossible in the time available to make a complete examination of all readings listed in order to arrive at a count of extra-textual requirements as accurate as that made for textual materials. The method followed was to obtain the average number of words per page of a score of references most frequently appearing, and then using the ratio of this page to one of Muzzey (1920)—the basis of comparison throughout this chapter—arrive at the number of equivalent pages of extra-textual readings. Such a method, although not accurate to the word, seemed satisfactory for practical purposes, as it will show significant differences where these obtain.

TABLE CXCIV

DISTRIBUTION OF HIGH SCHOOL AND COLLEGE COURSES IN AMERICAN HISTORY BY NUMBERS OF PAGES IN TOTAL READING REQUIREMENTS

NUMBER OF PAGES	HIGH SCHOOL		COLLEGE
	Half Year	Full Year	
401- 600	2	1	..
601- 800	4	..	..
801-1000	1	4	1
1001-1200	1	2	..
1201-1400	..	1	..
1401-1600	..	3	..
1601-1800	..	..	1
1801-2000	..	..	2
2001-2200	..	1	..
2201-2400	..	..	1
2401-2600	..	1	1
2601-2800	..	..	1
2801-3000	..	..	2
3001-3200	..	..	..
3201-3400	..	..	2
3401-3600	..	..	..
3601-3800	..	..	1
3801-4000	..	..	1
4001-4200	..	..	1
7523	..	..	1
NUMBER OF CASES	8	13	15
MEDIAN CASE	657	1169	2807

The distributions in Table CXCIV require little comment. They show the full-year high school courses tending to exceed markedly the half-year courses in the total reading requirements, the former in turn being exceeded by the college courses. There is, nevertheless, some extent of overlapping of the high school on the college distributions. The median cases show the full-year high school courses approaching double the requirements as compared with the half-year courses, while the median college case far exceeds twice the requirement of the full-year high school courses.

TABLE CXCV

DISTRIBUTION OF HIGH SCHOOL AND COLLEGE COURSES IN AMERICAN HISTORY BY NUMBERS OF PAGES PER CLOCK HOUR IN THE READING REQUIREMENTS

PAGES PER CLOCK HOUR	HIGH SCHOOL		COLLEGE
	Half Year	Full Year	
3.1- 5.0	..	1	..
5.1- 7.0	1	4	..
7.1- 9.0	1	3	..
9.1-11.0	2	2	1
11.1-13.0	4	1	..
13.1-15.0	..	..	1
15.1-17.0	..	1	..
17.1-19.0	..	1	2
19.1-21.0	..	..	..
21.1-23.0	..	..	1
23.1-25.0	..	..	..
25.1-27.0	..	..	1
27.1-29.0	..	..	1
29.1-31.0	..	..	1
31.1-33.0	..	..	2
33.1-35.0	..	..	..
35.1-37.0	..	..	..
37.1-39.0	..	..	2
39.1-41.0	..	..	1
51.1-53.0	..	..	1
75.1-77.0	..	..	1
NUMBER OF CASES	8	13	15
MEDIANS	11.0	8.3	30.1

In pages per clock hour of class time.—As the total amounts of class time differ, a comparison of greater critical significance is to be found in the distributions of pages of reading requirements per clock hour of class meeting (Table CXCV). This measure finds all the half-year courses with requirements ranging between 5 and 13 pages per unit of time, with a

median of 11 pages. The full-year courses show a wider range, but the tendency shown in the distribution and the median is to require less than in the half-year course. The college distribution overlaps on the high school distributions to some extent, but shows a marked tendency to exceed them. The median is almost three times as large as the higher median for high school courses.

The disparity shown is in no wise reduced when figures for college courses given to freshmen and sophomores predominantly are given separate consideration. The quantitative requirements of college courses, while far from flattering to standards in that institution, are far in excess of those in high school.

V. Supplementary Considerations

The methods used.—The chief distinction in classroom procedure between high school and college courses in American history is the larger proportion of time devoted to recitation in the former and the larger proportion of lecture in the latter. The percentages of the former in high schools are 88 and 82, respectively, in half- and full-year courses, and in colleges, 68. The proportion of time used for lectures is negligible in high schools, being less than 5 per cent for both the shorter and the longer courses. But for colleges it averages 20 per cent. In fact, in some instances, the lecture method is followed during as much as 80 per cent of all class time. As the quiz procedure tends to be an accompaniment of the method last named, it also is somewhat more prevalent in colleges than in high schools, averaging slightly less than 10 per cent in the former. "Other" procedures were called for in the blank of inquiry and the responses indicate the high school teachers utilize about 10 per cent of class time for a variety of additional methods such as directed study, group work, socialized recitation, oral reports, debates, etc. These are not as often resorted to by college teachers.

Oral and written reports by students.—Both these types of reports are more frequently required of students in high school than in college courses. The former are required in 23 of 26 high schools and 13 of 27 colleges; the latter in 21 high schools and 15 colleges. The written reports are more extended in colleges.

Other extra-textual activities.—High school courses also more frequently include two additional types of extra-textual activity, the making of maps and the inclusion of a study of current materials. The former is required in 19 high schools and 9 colleges; the latter is a part of the course in 8 high schools but is not mentioned by any college teacher.

Size of recitation sections.—The size of class sections in the two institutions is not as widely different as current discussion leads us to anticipate. For high schools the average is 25.5 and for colleges 27.7. There are some among the college sections enrolling as many as 40 to 60 students, but the

influence of these upon the average is offset by a number of sections enrolling fewer than 20. Almost all high school sections range between 20 and 30 students.

VI. Recapitulation and Conclusion

The most important similarities of, and differences between, high school and college courses in American history as shown in a number of randomly selected institutions are as follows:

1. The classification of students in the courses in these two units of the school system is predominantly at least two years apart. This fact is an anticipation of differences of quantity and quality in the courses, an anticipation only partially fulfilled by this study of overlapping in American history.

2. The average total of clock hours of instruction in college lies between the totals for half-year and full-year high school courses.

3. The college courses are less dependent for their materials upon the content of the textbooks than are the high school courses. For both groups, even including the half-year courses in the lower unit, there are large proportions of extra-textual materials.

4. The high schools use more commonly than do the colleges a single comprehensive textbook. Nevertheless, the most frequent practice in colleges is the use of a single volume for textual content of the course, a volume covering the entire period of American history.

5. High schools more frequently than colleges report covering the entire period from discovery to the present day. While colleges break away from this practice to some extent by shortening the period treated, usually by omitting attention to earlier portions, the most common single procedure is like that followed in the high schools.

6. It is to be expected, therefore, that, although colleges devote somewhat smaller percentages of the total textual portions of the course to the earlier periods and somewhat larger percentages to more recent history, the average percentages indicate more of similarity of content than of difference. The expectation is borne out by the facts.

7. The analyses of texts into the four large divisions, political, economic, social, and military, again show some difference of emphasis, but also more similarity than dissimilarity. The distributions to subdivisions discover no marked differences of proportions, although there seems to be a slight tendency to stress the more abstruse topics in the college texts, and the more concrete topics in high school texts. There are few topics distinctive of courses in either unit.

8. No other strictly qualitative differences between the texts appear, although extended objective research might locate them.

9. There are no large numbers of references distinctive of high school or of college courses. College courses, since they contain more extra-textual reading, doubtless use the references reported in common to a much larger extent. High schools use other texts as reference material more frequently than do colleges.

10. There are large quantitative differences between most high school and most college courses, among them more total pages read, more pages per clock hour of instruction, more pages per topic in textbooks, and more pages of reference reading. These differences in quantity are the most notable to be found in any such comparison as is here essayed. College courses require the covering of much more material.

11. Differences in procedure include (a) more lecture and less recitation in college, although the latter is the predominant classroom method in both units; (b) more making of maps in the lower unit; (c) more oral and written reports in that unit; (d) and more work in current events there.

12. The size of class section does not differ widely, the essential difference being a wider range in college than in high school.

The general conclusion in this field is that, notwithstanding certain tendencies toward differences in character of content and especially in quantity, first college courses have much in common with high school courses—too much to be ignored in any contemplated reform in relationships between schools on the two levels. There seems a greater tendency to difference than in courses in general chemistry as shown in the chapter immediately preceding, but this may be in part explained by the more advanced predominant classification of students taking the college courses in American history. It is worth noting that, despite the large extent of identity, departments of history never make attempts at adjusting their courses to those who have had work in similar lines in high school, as do at least some departments of chemistry.

This tendency to ignore what the high school graduate offers for admission would be especially unfortunate in view of the common practice in high schools of prescribing this course for all students, did not the student himself, intentionally or unintentionally, usually obviate the needless overlapping by avoiding election of the college course, at least during his first two years in the higher institution. For instance, of the 200 students whose work in high school and junior college years was canvassed for Chapters III and XXVIII, 145 offered courses in American history for entrance, but of these only 17 took the college course during the first two years. Probably many more took this course subsequently.

The situation as to overlapping in the field of medieval and modern European history differs in the respect that more students repeat content in this field by taking both the high school and the college courses. There may be a greater extent of mitigation of evils of waste through repetition

in the wider separation of high school and college courses in point of the classification of students taking the lower course. This is usually taken by high school sophomores and juniors, whereas the college course is probably more frequently taken by sophomores. The dangers of overlapping are less for ancient history for a similar reason, and repetition must also be less because a smaller proportion of college students register for it.

Repetition seems destined to increase in frequency as a result of the present movement to prescribe larger amounts of the social studies—and history among them—in the lower school. Committees and commissions representing influential educational groups are supporting the movement and their efforts are already securing results.

The present extent of identity and actual repetition by individual students in the field of historical subjects must be in large part a result of the separation of the two educational units in which they are taught. They arise from an attitude the opposite of that here quoted, held by one of the college instructors co-operating by supplying data, an attitude all too infrequently entertained by college authorities: ". . . . high-school and *beginning* college courses differ so little in scope and methods, and the latter add so little to good high-school work, that we do not wish to consider [offering] any of these *beginning* courses, each trying to exhaust the possibilities of the outstanding movements of each period. It is thought that the outlook on American history *as a whole* is good on the part of those who enter our college [or any college], hence the idea of delving more deeply in these [college] courses." In view of the slow process of such recognition during the half century that has elapsed since high schools and colleges have both given courses in American history, we can hardly hope for actual remedy of the situation with the separation now typical. It is a safe prediction that proper adjustments in such courses will be slow in coming—if they ever come—without bringing these courses in closer touch with each other through junior college reorganization.

CHAPTER XXXV

OVERLAPPING IN ECONOMICS

I. Preliminary Considerations

Distribution of institutions represented.—Eighteen high schools and thirty colleges and universities are represented in the materials of this chapter. With the exception of three of the latter group all are located in mid-western states. The states in which the high schools are to be found are: Illinois, 7; Indiana, 2; Iowa, 4; Michigan, 2; North Dakota, 1; and Wisconsin, 2. Those in which the colleges and universities are to be found are: Colorado, 3; Illinois, 4; Indiana, 1; Iowa, 5; Kansas, 2; Michigan, 4; Missouri, 2; Nebraska, 2; Ohio, 4; South Dakota, 1; and Wisconsin, 2. Among the higher institutions are twenty-four separate colleges and six universities. Approximately equal numbers of secondary schools and higher institutions were appealed to for information, the smaller number of responses in the former probably being explained by the fact that a smaller proportion of them offer courses in economics.

The courses.—The high school courses usually bear the simple title "Economics." In the occasional exception the word "elementary" precedes this title. No course bearing the title "Social Problems" is represented in the study made, although reports were received on at least two. The title borne by more than half the college courses represented is "Principles of Economics," other names being in the order of frequency "Economics," "General Economics," "Introduction to Economics," "Elementary Economics," "Political Economy" (only a single instance of this historic title), etc. The difference between the prevailing titles in the two units is to be explained in part by the absence in the high schools of other courses in the same field, from which it is necessary to differentiate it in any catalogue of the total offering.

For two higher institutions in which two different courses of a more or less introductory character are given, the course available to students of the lower classification was taken for analysis. In one instance this meant a freshman rather than a sophomore course; in the other, a course for sophomores rather than one for upperclassmen.

The classification of students taking the courses.—The predominant classification of students taking the courses as reported by instructors is shown in Table CXCVI, in which 1 signifies freshmen; 2, sophomores, etc. Five of the high school courses are taken predominantly by juniors and seniors and 13, by seniors. In colleges the range of class representation is wider. If the frequencies of appearance of each class in the reports are totaled, for high schools these become 5 juniors and 18 seniors, while

for colleges they are 12 freshmen, 26 sophomores, 11 juniors, and 9 seniors. This makes the most frequently recurring predominance that of seniors in high school and sophomores in college—a predominance of classification two years apart for the courses on the two levels. This is a difference anticipatory of important differences between the courses themselves.

TABLE CXCVI

THE PREDOMINANT CLASSIFICATION OF STUDENTS TAKING THE EIGHTEEN HIGH SCHOOL AND THIRTY COLLEGE COURSES IN ECONOMICS

CLASSIFICATION OF STUDENTS	NUMBER OF HIGH SCHOOL COURSES	NUMBER OF COLLEGE COURSES
1	..	1
2	..	13
1, 2	..	5
2, 3	..	2
3, 4	5	2
4	13	..
2, 3, 4	..	1
1, 2, 3, 4	..	5
1, 3, 4	..	1
TOTALS	18	30

Class time devoted to the courses.—The high school courses represented in the study were all a half year in length. The college courses varied more widely, 2 of them being one-quarter courses; 2, two-quarter courses; 9 single semester courses, and 17—more than half—full-year courses. When reduced to total numbers of clock hours of time in class, the distribution is as shown in Table CXCVII. As anticipated, the college courses vary more widely than do the high school courses. The median amounts, however, do not differ by more than 15 clock hours.

II. THE NATURE OF THE CONTENT OF THE COURSES REPRESENTED

The domination of the courses by the texts used.—A first concern in an attempt to compare the content of high school and college courses in economics is to ascertain the extent of dominance of the courses by the textbooks used. This is shown in certain measures of tendency reproduced in Table CXCVIII. These measures have been obtained from the total amounts of readings of the courses ascertained from an examination of texts and reference readings reported and after all these amounts had been equated by reducing them to the same basis. For courses on both levels the ranges are seen to be very wide—from a small fraction to a total of the whole course. The minimum percentages, however, are not very representative, since it is apparent from the figures for the median cases that half

the cases include approximately three fourths or more of the total content within the covers of the textbooks used. Seven high school and nine college courses have no regularly prescribed readings outside the text. A fact of importance is the approximate equality in this respect of the courses on the two levels.

TABLE CXCVII

DISTRIBUTION OF EIGHTEEN HIGH SCHOOL AND THIRTY COLLEGE COURSES IN ECONOMICS AS TO TOTAL CLOCK HOURS OF CLASS TIME

CLOCK HOURS	HIGH SCHOOL	COLLEGE
40- 49	..	6
50- 59	..	2
60- 69	7	2
70- 79	7	1
80- 89	1	3
90- 99	2	12
100-109	1	3
144	..	1
TOTAL NUMBER	18	30
MEDIAN CASE	75.0	90.0

TABLE CXCVIII

CERTAIN MEASURES OF TENDENCY OF THE PERCENTAGES WHICH THE TEXTS USED ARE OF THE TOTAL READING REQUIREMENTS OF HIGH SCHOOL AND COLLEGE COURSES IN ECONOMICS

MEASURES OF TENDENCY	HIGH SCHOOL	COLLEGE
Minimum	9.3	24.7
First quartile	49.4	48.2
Median case	74.2	80.1
Third quartile	100.0	100.0
Maximum	100.0	100.0

The textbooks used.—The volumes reported as texts are listed with their frequency of use either in high school or college courses in Table CXCIX. The first fact likely to come to one's attention in examining the table is the negligible extent of overlapping of the lists used in courses on the two levels. The only instance is Marshall and Lyon, a high school text reported by two department heads in higher institutions who also reported one or two addi-

tional volumes as textual material. This almost complete distinction between the two lists is in harmony with the tendency to publish texts intended for use in one and not both institutions.

TABLE CXCIX

FREQUENCY OF USE AS TEXTBOOKS OF CERTAIN WORKS IN ECONOMICS

AUTHOR AND TITLE	HIGH SCHOOL	COLLEGE
A. PREDOMINANTLY HIGH SCHOOL TEXTS		
1. Adams, Description of Industry	1	..
2. Bullock, Introduction to the Study of Economics	2	..
3. Burch, American Economic Life	1	..
4. Carver, Elementary Economics	1	..
5. Ely and Wicker, Elementary Economics	3	..
6. Laing, Introduction to Economics	2	..
7. Marshall and Lyon, Our Economic Organization	2	2
8. Thompson, Elementary Economics	9	..
B. PREDOMINANTLY COLLEGE TEXTS		
9. Baleson, Business Barometers	..	1
10. Briscoe, Economics of Business	..	1
11. Briscoe, Economics of Efficiency	..	1
12. Brown, Theory of Earned and Unearned Incomes	..	1
13. Carver, Principles of National Economy	..	2
14. Clay, Economics for the General Reader	..	3
15. Davenport, Elementary Economics	..	1
16. Ely, Outlines of Economics	..	8
17. Fetter, Economic Principles	..	1
18. Fetter, Economic Problems	..	1
19. Hamilton, Current Economic Problems	..	1
20. Marshall, Readings in Industrial Society	..	2
21. Marshall, Wright, and Field, Materials for Study	..	1
22. Seager, Principles of Economics	..	4
23. Taussig, Principles of Economics	..	10
24. Turner, Introduction to Economics	..	1

The total frequency for the 8 volumes reported as texts in the 18 high school courses is 21. The excess of 3 is explained by the fact that two texts were reported for three courses. The total frequency for college courses is 41. The excess of 11 is explained by reports of 2 texts for 6 courses, and 3 and 4 texts for a single course each. The prevailing practice in courses on both levels is the use of a single text.

The collateral readings.—A long list of 168 different works are reported as reference material used in connection with the 48 high school and college courses represented. Of these the 21 reported 4 times or oftener are to be found in Table CC. An examination of the titles in this table with those of Table CXCIX will disclose that only 4, viz., Nos. 2, 5, 13, and 18, were

not also reported as textbooks, and even 3 of these 4 are in the nature of textbooks in economics. Many of the others not in this list because less frequently reported do not fall into the group originally intended for use as texts, but it is a fact of no small significance that by far the predominant type of collateral reading is in other textbooks than those used as the bases of the courses concerned.

TABLE CC

FREQUENCY OF USE AS COLLATERAL READINGS OF CERTAIN WORKS IN ECONOMICS

AUTHOR AND TITLE	HIGH SCHOOL	COLLEGE
1. Adams, Description of Industry	4	..
2. Bogart, Economic History of the United States	4	1
3. Bullock, Introduction to Economics	4	2
4. Burch, American Economic Life	5	..
5. Bullock, Readings in Economics	..	4
6. Carver, Elementary Economics	8	..
7. Carver, Principles of National Economy	2	3
8. Clay, Economics for the General Reader	1	11
9. Ely, Outlines of Economics	5	20
10. Fetter, Economic Principles	1	7
11. Fetter, Modern Economic Problems	1	4
12. Hamilton, Current Economic Problems	..	11
13. Marshall, Principles of Economics	..	4
14. Marshall and Lyon, Our Economic Organization	6	4
15. Marshall, Readings in Industrial Society	1	6
16. Marshall, Wright, and Field, Materials for the Study of Economics	3	18
17. Seager, Principles of Economics	7	11
18. Seligman, Principles of Economics	3	10
19. Taussig, Principles of Economics	5	23
20. Taylor, Elementary Economics	13	..
21. Turner, Introduction to Economics	..	4

A glance down the columns of frequencies in Table CC will show that 13 of the volumes are used in both high school and college courses, 4 in high school courses only, and the remaining 4 in college only. Although data on *frequency* do not, of course, indicate the same proportionate *extent* of use of the volumes used in common, the facts cited may be used as evidence that the courses on the two levels utilize no inconsiderable proportion of materials in common.

Omissions from textbooks used.—Another item of inquiry to which response was requested, the returns to which might have significant bearing upon the results of a comparison of high school and college courses, is the extent of omissions from the volumes reported as textbooks. It turns out

that in but two high school and four college courses are such omissions made. The textbook is, therefore, so much the more the determinative constituent of the course.

A comparison of textual content.—The results of the analysis of the textual content are given in Table CCI and Figures 93 and 94, which present the average numbers, equated pages, and percentages for the high school and the college courses. All computations have been made on the basis of Thompson, the high school text in most frequent use in the courses here represented. The grouping of major divisions to which the content was distributed was one of several which might have been used, the matter of greatest importance being the use of the same basis of separation throughout all the materials analyzed. Owing, however, to the widely differing organization of the texts represented, it is not possible to vouch for the complete accuracy of the results of the analysis, although they may be regarded as approximately correct.

TABLE CCI

AVERAGE NUMBERS OF EQUATED PAGES AND PERCENTAGES OF EIGHTEEN HIGH SCHOOL AND THIRTY COLLEGE COURSES IN ECONOMICS DEVOTED TO ITS SEVERAL DIVISIONS

DIVISIONS	HIGH SCHOOL		COLLEGE	
	Average Number of Pages	Per Cent	Average Number of Pages	Per Cent
1. Production	154.6	40.9	289.2	30.5
2. Value and exchange	46.9	12.4	100.7	10.6
3. Money and the exchange mechanism	52.7	13.9	133.1	14.0
4. International trade	21.6	5.7	61.1	6.4
5. Distribution	47.2	12.5	160.1	16.9
6. Labor problems	35.8	9.5	136.8	14.4
7. Taxation	19.2	5.1	67.8	7.2
TOTALS	378.0	100.0	948.8	100.0

The data on numbers of pages show the textual materials of college courses to be, with the exception of the first division, more than twice those of high school courses. In the instance of production, the amount is almost twice as large. The average total numbers of pages in all divisions given at the foot of the table show the college amounts to be more than two and one-half times as great as the high school amounts.

When attention is directed to the percentages of the textual content devoted to each of the divisions no such marked distinction between the courses on the two levels appears. The proportions assigned are not identical but they are at least roughly equal. The conclusion to be drawn is

that, although textual materials in the college courses greatly exceed those of high school courses, the *proportionate* emphasis approximates identity. The high school course seems to be an abridged version of the college course. The method of gross analysis cannot show another significant fact, that abbreviation is also accompanied by simplification.

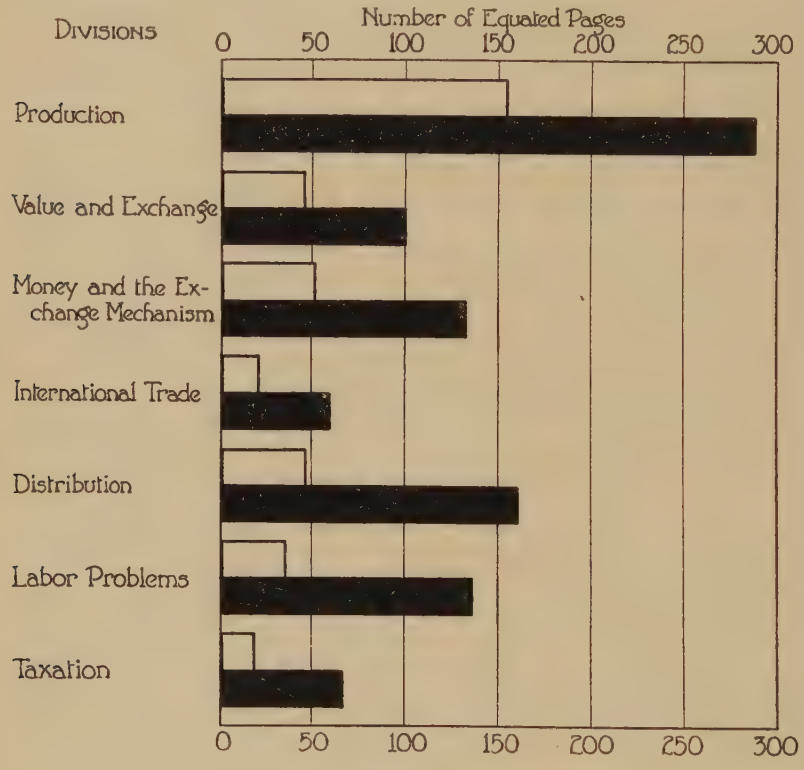

Figure 93

Average numbers of equated pages of textual content devoted to the several divisions in high school and college courses in economics (in outline, high school; black, college)

There are, of course, wide variations of distribution within each group of courses represented. For instance, the proportion devoted to production in the high schools ranges from 26.2 to 82.7 per cent. But the college variation is almost as wide, ranging from 12.3 to 63.2 per cent. These extremes do not, however, represent typical courses.

III. Quantitative Differences

Comparison of the total reading requirements.—Data already presented have made clear that the quantitative requirements of college courses much exceed those of high school courses. The median and quartile numbers of

pages represented by the total reading requirements of courses on the two levels, including collateral materials, are shown in Table CCII. The median college amount is seen to be more than double that of the median high school case. The requirements of three fourths of the college courses are in excess of all those excepting approximately the top fourth of the high school courses. Even with a tendency to large differences, the total requirements of some high school courses exceed those of some college courses.

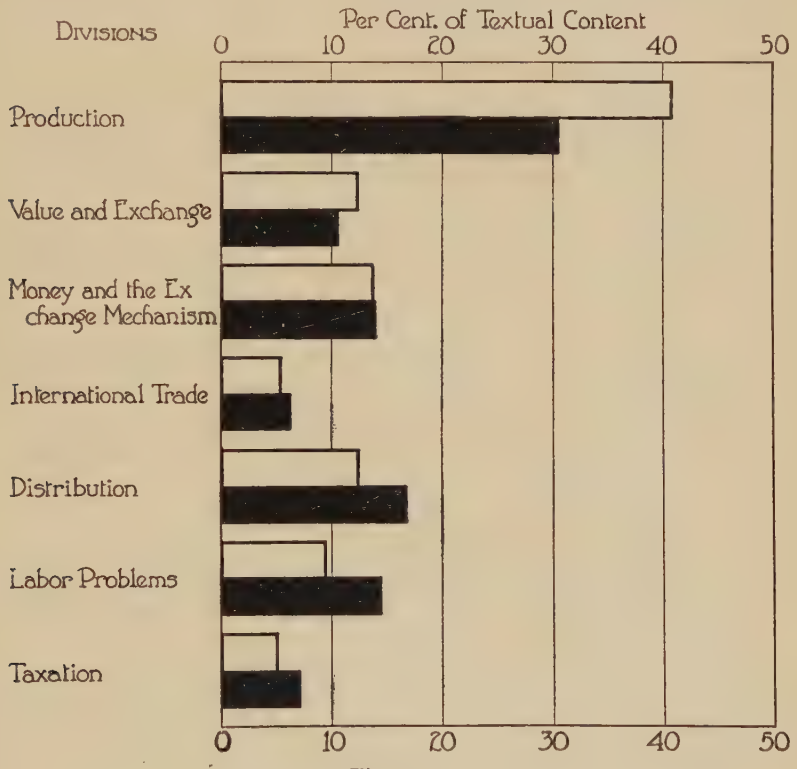

Figure 94

Average percentages of textual content devoted to the several divisions in high school and college courses in economics (in outline, high school; black, college)

The reading requirements per clock hour.—When these total requirements are transmuted into the numbers of equated pages per clock hour, the measures of tendency are as shown in Table CCIII. The median cases show between two and three times the extent of requirement per unit of instructional time for courses on the upper level. This difference, coupled with differences in difficulty of the readings represented, is evidence of a tendency toward a marked distinction of level of performance in the two groups of courses studied. It should, nevertheless, be pointed out again that the requirements of some high school courses exceed those of some college courses.

TABLE CCII

MEDIAN AND QUARTILE NUMBERS OF EQUATED PAGES OF TOTAL READING REQUIREMENTS IN EIGHTEEN HIGH SCHOOL AND THIRTY COLLEGE COURSES IN ECONOMICS

MEASURE OF TENDENCY	HIGH SCHOOL	COLLEGE
First quartile	357.7	845.1
Median case	517.2	1177.1
Third quartile	748.5	1833.0

IV. ASPECTS OF THE CONDUCT OF COURSES IN ECONOMICS

Size of class sections.—The instructors having been asked to report the size of class sections, it was possible to make a simple comparison of high school and college courses in this respect. In cases where more than one recitation section was in progress the averages were computed and from these and the data supplied by other schools the range and median size of recitation section ascertained. For high school courses the range is 20 to 32, with a median case of 27. For college courses the range is considerably wider, extending from 17 to 45, while the median is 30, only 3 students larger than for the lower unit.

TABLE CCIII

MEDIAN AND QUARTILE NUMBERS OF EQUATED PAGES OF READING REQUIREMENTS PER CLOCK HOUR IN EIGHTEEN HIGH SCHOOL AND THIRTY COLLEGE COURSES IN ECONOMICS

MEASURE OF TENDENCY	HIGH SCHOOL	COLLEGE
First quartile	4.8	12.4
Median case	6.6	17.8
Third quartile	11.5	20.4

No high schools conduct separate lecture sections. This practice is also uncommon in colleges, as 24 of the 30 report that they have no lecture sections or state that recitation and lecture groups are identical. Of the 6 which report separate lecture sections only 4 have groups in excess of 50 and none more than 108.

Comparison of classroom procedure.—The facts as to size of class sections indicate that those in charge of college courses are under no compulsion to resort to types of classroom procedure radically different from those used in high schools, and the reports from instructors indicate much more of similarity than of difference in the courses in these respects. What goes

by the name of "recitation" is the prevailing type of procedure in both high school and college, the median proportions being respectively, 90.9 and 86.2 per cent. The median cases in high school and college utilize 0.0 and 12.5 per cent, respectively, of class time for lecture. A small proportion of colleges—6 only of the 26 answering inquiries concerning method—utilize the lecture procedure during a half or more of the total number of clock hours of instruction. As the quiz method is frequently an accompaniment of the lecture type of procedure and sections of large size, it does not often include a large fractional part of class activity either in high school or college courses in economics. The median percentages are, respectively, only 7.6 and 3.7.

Oral and written reports.—High school courses much more often than college courses require of students the making of oral reports. It is seldom that more than one or two such reports are demanded of each student during the courses. Written reports are required in about two fifths of both high school and college courses. In courses where prescribed they are seldom of formidable length, ranging from five or six hundred to two or three thousand words.

V. Opinions As to Differences between the Courses

A great variety of response was made to a request to venture opinions as to differences between high school and college courses as now given. Some of these opinions are conflicting and others too scattered to quote, but certain types recur with sufficient frequency to warrant generalization. The one most often suggested is that the course in the lower unit does not emphasize theory or principles as much as does the college course. This opinion is frequently accompanied by the statement of belief that the high school course is more "descriptive" or "historical" than the college course, and deals to larger proportionate extent with applications of principles. An opinion proffered with considerable frequency is that the amount of material covered is greater in the college courses. For the most part high school and college instructors concur in these judgments, the primary difference being an inclination on the part of the latter to disparage the high school course.

VI. The Major Findings and Their Significance

The high school and college courses in economics are taken by students typically two school years apart in classification. The total amount of instructional time devoted to them does not tend to differ widely. The former of these two facts anticipates a considerable measure of difference between the courses; the latter, more of similarity. A comparison of the courses, paradoxical as the statement may seem, bears out both expectations.

Similarities of the courses on the two levels will first be reviewed. Both are constituted predominantly of the textbooks used, as is shown in the

results of a computation of the percentages which these are of the total reading requirements of the courses, in the infrequency of omission of portions of the textbooks in use, and, moreover, in the fact that most of the collateral readings are in volumes intended for use as texts. There is considerable community of use by high school and college courses of works reported as collateral reading. The most significant similarity of all is to be found in the proportionate distribution to the several divisions of the subject, showing that not only the college, but the high school courses also, endeavor to make contact with all major aspects of the field. Variation from course to course in the matter of amounts of materials covered shows some high schools doing as much as or more than some colleges. Lastly, classroom procedure does not differ widely in the courses in the two units of the school system.

On the other hand, high school and college courses seldom use identical works as textbooks. Again, although proportionate distributions to the several divisions are roughly equivalent, the amounts of material in each division and for the entire course are much greater in the college than in the high school. In consequence, the reading requirements of the courses per clock hour of instruction are decidedly heavier for courses on the upper level. Doubtless there are also differences in difficulty, differences which are likely to elude the type of analysis here used and which are encouraged by the greater extent of selection of college students and better subject preparation on the part of the instructor.

Although far from identical, the courses on the two levels have enough in common to warrant concern over the current practice of ignoring in the higher institution the fact that a student has had the course in the lower unit. The degree of identity in the present stage of development of the high school course is probably not sufficient to justify accepting it in lieu of a standard college course in the field. The situation, moreover, is such as not to promise soon a partial recognition of the high school course, as is done in chemistry, by abbreviating or otherwise modifying the college course for those who have had the work in the lower unit. Nevertheless, no progress is made in the solution of the problem by disparaging the course in the lower unit and encouraging the deplorable repetition by having students take both courses, as is now too often done. If the present trend of more extended recognition of the social studies in the high school continues, as seems almost certain, this repetition is likely to increase rather than to diminish, unless high school economics comes to be merged in the composite courses in social science recently finding place there. The way out appears to be the provision of junior college work in connection with strong high schools, and the more logical performance of the function of guidance in the selection of courses in terms of the whole period of general education. With the work of the

first two college years part of the total offering available in the new secondary school, both student and adviser will be in a position to select courses with better discretion, among other things selecting more wisely from those obviously repetitious. It may even be questioned whether, after the rearrangement of years in the system has been operative for some time, we shall have two courses as nearly alike available for the same students, and whether this will not be followed by a reconstitution of courses more in keeping with the needs of the situation.

CHAPTER XXXVI

OVERLAPPING IN HIGH SCHOOL AND COLLEGE—A RESUME

A summary of the situation disclosed.—Angell's claims as to duplication as cited near the opening of Chapter XXVIII have been amply substantiated in subsequent portions of Part IV, both in the general estimate by which the canvass was opened and in the examination of particular courses used to illustrate the several fields commonly represented in high school and college offerings.

The more general canvass disclosed that of all the work offered to students in the first two years of standard colleges a generous fifth is clearly secondary and another fifth is partly secondary, the total proportion of the work designated as both secondary and partly secondary being somewhere between two fifths and a half of the entire offering. The proportions are much increased when computations are based on the work actually taken by any large number of students randomly selected. In the illustrative study essayed almost a third was secondary and two fifths partly secondary, making almost three fourths secondary or partly secondary. The proportion of actual repetition by high school students is much smaller, but nevertheless amounts to something like a fifth of the average high school curriculum, or perhaps in the neighborhood of four fifths of a high school year of work.

The results of the investigations in the special fields seem to bear out fully the estimates on the general situation: (a) The textbooks in the history of *English literature* used in high school and college courses are much more nearly alike than they are different, although there are certain tendencies to qualitative distinctions, such as less personal and more literary biography and more emphasis upon minor writers in the collegiate manuals. There is much actual repetition in the literature studied, the figures indicating that, counting equated pages, the survey course in college goes over again more than a third of all the ground covered in this field during the four-year high school period. (b) The distribution of the textual content of the courses in *composition* in the institutions on two levels, while again showing important differences, such as a somewhat greater emphasis on more elementary divisions in the high school, points toward conclusions of a nature somewhat similar to those drawn for literature. (c) The content of elementary courses in *French* is much the same in college as in high school, the chief difference being in a reversal of the positions of predominance of grammatical and reading content: college courses carry a larger proportion of the former and a smaller proportion of the latter than do high

school courses. (d) Differences and likenesses are more difficult to summarize briefly for *higher algebra* and *college algebra* than for courses in the fields so far referred to, but analysis and comparison show a large extent of similarity of emphasis on certain topics, with differentiation on others. The lower courses stress the elementary processes and the higher courses certain advanced topics not frequently finding a place in the lower. The chief distinction, however, seems to be a greater emphasis upon theory in college algebra and correspondingly less attention to drill aspects. (e) *Chemistry* is a subject in which there appears to be an even larger extent of identity than in any of the other courses studied. The differences in emphasis are, among others, more on compounds and rarer elements and less on uses and organic compounds in the first college courses. (f) Most of the first college courses in *American history,* like those in the high school, attempt to cover the entire period from discovery to date, but there is some tendency in the college to focus attention upon briefer portions of the full period. The average proportions of distribution of total textual content are remarkably alike for the two groups of courses considered. (g) Lastly, there is an almost equal average emphasis upon each of the several divisions of *economics* in the high school and first college courses in this subject.

There are on the average, of course, important *quantitative* differences between the courses on the two levels for almost all fields represented in favor of the college courses analyzed. This is true of the reading content in the survey course in English literature when taken as a whole and also when computed in number of pages per clock hour of instruction. It is true again for textual content in English composition, as well as for the actual requirements in the way of writing. The degree of difference in total quantitative respects in favor of college courses in elementary French is shown in the fact that the median case covers almost twice the ground covered in the high school during an equal period of time. There is in consequence a large typical difference between the numbers of pages of text and reading covered per clock hour of class meeting. In the courses in algebra we find a typically larger total amount of the textual content devoted to theory in college algebra, but the relationship is reversed for exercises and problems. The latter difference is probably more than counterbalanced by distinctions in difficulty of the materials introduced. We have in this field the only instance in which typically the gross quantitative differences are in favor of the high school course. The quantitative differences for chemistry, American history, and economics are not markedly unlike those in the first three courses referred to in this paragraph, the collegiate typically exceeding the high school courses in total amount and in amount per clock hour.

Undiscovered qualitative differences.—At several points in the foregoing chapters of Part IV it has been conceded that although the methods of inquiry used are designed to discover some of the qualitative differences between the courses on the two levels represented, they have not found all. Nothing short of a comprehensive plan of measuring the result of the instruction given can meet the requirements of the situation. Among the factors certain to make for qualitative distinctions at least as concern results are the larger extent of selection in the student body of even the first years of the college as compared with the last years of the present high school period and the more extended training in subject-matter of college teachers. There are also other qualitative differences in detail of content which are not discoverable by the methods used.

Factors making for identity.—But, after all admissions of undiscovered distinctions have been made, the large extent of community of content remains as the salient feature of the curricular situation investigated. This conclusion of the large extent of identity is encouraged, moreover, by other facts than those just summarized, facts presented in the current and foregoing parts of this report. In the earlier chapters of Part III we learned that much, if not most, of present-day high school offering is a heritage from collegiate curricula, that subject after subject has been depressed, usually without dilution, from college to high school years. Since this depression was accomplished by teachers trained in the colleges, it would have been surprising indeed if they did not transfer to the lower school as nearly complete as possible what had been in the work taken by them in their college careers.

The same conclusion is anticipated also by the facts concerning the proximity of classification of students taking the high school and college courses examined and the degree of similarity in the methods used, the latter being in turn anticipated by the negligible differences in the typical size of class sections. For example, the portion of the high school course in English which is devoted to the survey of English literature is taken typically by seniors, while the college course is usually taken by freshmen and sophomores. The tendency to nearness of classification is characteristic of most of the courses intensively scrutinized in the seven foregoing chapters. The subjects, in part exceptions to this generalization, are English composition, certain portions of which come in for emphasis during lower high school years only, and first courses in high school French which are in some high schools more frequently taken by ninth grade or tenth grade than by eleventh grade students. The first college courses in most of these subjects are thus typically pursued either in the year immediately following that in which the corresponding course is pursued in high school, or with but a single school year intervening. Much less frequently is there a wider gap of time between them. Under such circumstances it is not to be expected that the courses would differ widely.

Another type of fact anticipating similarity is the degree of similarity of methods. The chief difference here seems to be the more frequent use of the lecture method in the college courses, more especially in the survey course in English literature, in chemistry, and in American history. Even in these there is not as large a difference as traditional beliefs lead us to expect, the recitation mode being the typically predominant one in the college as well as in the high school courses. This similarity of procedure is made possible by the relatively small average excess in the size of class sections in college.

The situation in courses and subjects not investigated in detail.—While estimates have already been ventured on the degree of overlapping in fields and courses not subjected to such detailed analysis as was attempted for the materials of the chapters just summarized, it will be well to refer to them briefly once more at this point. On the basis of the earlier place of Greek and Latin in secondary school programs there was relatively little overlapping of college upon high school offerings in these languages. Beginning Greek has, however, become a course given almost exclusively in the college and we may say, therefore, that, although there is little in the way of repetition by the individual student, those who take it are doing work of secondary school character. Latin seems to be following its elder sister in this process of being relegated to the early college years, if we may judge by the appearance of elementary offerings in the college catalogues in the West and Middle West, and, to the extent that this is true, the same thing may be said of it as was just said of Greek. The situation as to Spanish is essentially the same as that for French, while that for German differs only in the fact that instruction in this language is now practically non-existent in high schools, elementary courses like those in other modern foreign languages being pursued in junior college years.

In so far as students pursue courses in solid geometry and trigonometry in college they are doing work of secondary school character, since the former course is typically and the latter often given in the high school. The courses in analytic geometry overlap to some extent upon high school courses, but to a less extent than do others so far named, while the courses in the calculus are even more markedly differentiated. Courses in science in college other than chemistry overlap less extendedly than the latter upon corresponding high school courses, sometimes because of prerequisites, as is true of physics, and sometimes because they are farther apart in the matter of typical student classification. There is, notwithstanding, a large amount of community of content in high school and first college courses in biology, physics, physiography, etc.

There is no occasion to believe that the situation touching courses in history other than American is essentially different from that shown for it, except where the student classifications for the corresponding courses are

farther apart. The gap in this respect would usually be widest for courses dealing with the ancient world. Similarities and differences for political science and sociology and corresponding courses in the high school are probably somewhat analogous to those as shown for economics. Certain fields like philosophy and psychology are so infrequently represented in the lower unit that content may be regarded as fully distinctive of the college.

This brief survey of the unanalyzed subjects and courses leads to conclusions not differing widely from those already drawn, but at the same time to such as acknowledge a somewhat greater extent of difference and less of repetition.

The major conclusions repeated.—In brief the significance of the facts summarized in this chapter is that curricular offerings in the high school and in the college during freshman and sophomore years (a) have much in common and (b) as administered involve a large amount of repetition by the individual student. The community of content argues that if the work in the lower unit is to be characterized as secondary, most of that taken by the student during his first two years in the upper unit is also to be classed as secondary. There is much of artificiality and little of logic in our present line of demarcation between secondary and higher schools.

There are those disposed to contend that some extent of repetition by the individual student of work he has done in the high school is necessary. They would resort for grounds for this necessity to the traditional charges that present-day high school work is "inefficient," that its typical inadequacy obliges college teachers to cover the ground once more.

It is conceded that some measure of renewed contact with materials already covered in the high school is desirable when a college student takes up again a subject to which he has given no thought for some months to a few years. It may even be that there has been some slight slump in efficiency of instruction in recent years because teachers in high schools are confused and baffled by a mental democratization which has brought a wider range of native ability into the high school than was formerly represented there, a democratization which has confused college even more than high school authorities. As a whole, however, efficiency of instruction may safely be assumed to have held its own or even made substantial gains. The writer feels confident that the extent of repetition found is much in excess of the genuine necessities of the situation and that a better organization of secondary and higher education would have obviated most of it. This confidence is increased when it is recalled that the high school courses represented in the foregoing chapters were those going forward in cities most of which had populations of 10,000 and over. Most of the large amount of repetition would not be found to exist were contacts between instructors in courses on the two levels represented at all frequent.

As it is, the repetition goes on unchallenged or with an inadequacy of adjustment to what the student has had in high school that must involve

a staggering waste of time and a demoralization rather than a building up of study habits. The types of adjustment now being practiced with some reference to their frequency of occurrence were reviewed near the close of Chapter XXVIII. They were seen to be at best only partial, the conclusion being "an all too common disregard in the college of what the student has compassed in his period of high school training" and "no notable tendency in the direction of proper recognition."

The facts presented and the conclusions drawn all point in a single direction, and that is toward the inclusion of the junior college years as a part of a coherent plan of secondary schools. While some improvement can be effected through introducing junior-senior lines of cleavage in present-day higher institutions and through vigorous efforts at co-operation between those responsible for education on the high school and junior college levels concerned, these means will be inadequate to the needs of the situation. What is required is an organization of education that will bring the courses on the two levels and those presenting them into close and frequent contact. Only in this way can we have assurance of achieving a realignment of courses in each field promising the maximum of progress and training to students pursuing the sequences represented. For instance, it is unlikely that, after junior college reorganization of the type that brings these years of work in close association with that in the unit below, we shall go on having, as is now a too frequent practice, two courses in American history, one taken typically in the twelfth grade and the other in the fourteenth or fifteenth, both of them attempting to "exhaust the possibilities of the outstanding movements" from the period of discovery to the present day. The same may be said of high school and first college courses in other fields, such as chemistry, economics, etc. The realignment should and will bring profound modifications of content and character of courses and a standardization in these respects not now possible. Only through junior college reorganization of the type indicated will we eliminate superfluous repetition in the college of ground already covered in the high school. Also, only in this way will we soon arrive at a place where advice to the student will assist in securing an approach to the proper distribution of work to the several fields during his full period of secondary education. With the present tendency to think of these two levels as distinct periods of education there is too little likelihood of achieving anything like a satisfactory distribution.

Lest some may conclude that by introducing the junior college as proposed we shall be merely advancing by two years the point at which ill-considered repetition begins, let it be pointed out that there can be relatively little of this with the junior year as the place of beginning emphasis upon one's specialty, as is now the predominant practice. With the period of general education concluded, the bulk of the danger of superfluous repetition is removed.

PART V

INSTITUTING THE JUNIOR COLLEGE PLAN

CHAPTER XXXVII

EVALUATING THE TYPES OF JUNIOR COLLEGES

I. The Movement Sustained

A summary of the advantages of the movement.—The materials presented in the foregoing chapters of this report afford ample justification of the junior college movement. Only an occasional aspect of the many-sided attack upon the study of the new unit has turned out unfavorable to it, and in most of these exceptions the inadequacy can be ascribed to the sheer immaturity of the movement. As it is believed that this conclusion of justification has been given adequate support at appropriate points in Parts II, III, and IV, there is no intention to do more at the opening of the current chapter than to direct the attention of the reader again in the briefest manner to some of the more prominent of the findings sustaining the right of the junior college to a place in our school system.

(1) It has been shown that the average junior college does not fall far short in the extent of its offering of that actually taken by most students during their first two years of work in colleges of liberal arts. Although the new unit does not qualify as well on the requirements of the first two years of work in preprofessional curricula and in professional curricula opening with the freshman college year, it does not appear that sizable units cannot give all the general and special work of such of these as concern any considerable proportion of the total number of students in higher institutions.

(2) In certain aspects of the instructional situation the junior college does not yet measure up to other higher institutions. This statement applies to tendencies as to the extent of periods of graduate training and proportions of instructors adequately trained for the subjects they are teaching. In others it compares more favorably, as in the extent of training in education, in experience, and remuneration. Observation of the actual work of teaching corroborates the conclusion drawn from a study of training and experience, that, although instructors in junior colleges seem on the average less well equipped from the standpoint of subject-matter, they at the same time tend to be superior in instructional procedure. The same observation indicated an approximation to equality in the average level of student performance in accredited junior colleges and in other higher institutions, this judgment being supported by the results of a comparison of average marks earned in their third year of work in standard higher institutions by junior college graduates and those who had earned the right to senior college standing in an estimable state university. The progress of the junior college in these instructional matters during its brief history is an earnest of even

more progress and the ultimate attainment of satisfactory standards in all respects. There is no occasion to doubt that the junior college will achieve a type of instruction much more suited to students on this level than characterizes much of the classroom procedure in present-day colleges and universities, in which there is too much effort to avoid lower-class teaching responsibilities to be wholesome and constructive.

The junior college will not only be well suited to serve the needs of those who should or can aspire to higher levels of training; it is clearly better designed than are our higher institutions to provide for those who should not or cannot go on. Its superiority in the solution of this problem rests in the fact that, with the first two college years as terminal years in the school containing the junior college, there will be a marked tendency to look out for the interests of this group of students. This interest in these as culminal years will result in the development of (3) general as well as (4) special occupational (semiprofessional) curricula ending with the close of the junior college period. It is not to be expected that present-day higher institutions will manifest a constructive interest in curricula less than four years in length because of their logically primary concern with students in curricula four or more years in length. Nor could students be induced in large numbers to enroll for such curricula because of the loss of caste in aspiring to anything less than the completion of the typical length of curriculum in a given institution. (5) Through proximity and lowered costs the junior college is in a position to make more nearly universal the opportunities of education on this level. This in turn, by removing a large part of the cost in these years, will make it more nearly feasible for many to secure work beyond the junior college level.

(6) Judging from parents' opinions and from the younger age of freshmen in junior colleges and in other higher institutions when they reside in the community of location than when they come from outside, the new unit is looked upon by patrons as affording a continuation of home influences during the critical years of social immaturity. No matter what one's opinion may be touching the reality of the moral hazard of attendance upon institutions away from home during these first college years, it is a social force to be reckoned with, since it postpones continuance of education and entails a deplorable loss of time. Few will doubt, moreover, that there is an actual hazard, especially in institutions with large registrations and staffs inadequate to the purposes of social and moral guidance. (7) Not unrelated to this advantage is the larger extent of attention affordable to the individual student in junior college units. The marked difference as to size of class sections now obtaining between the new institution and the larger colleges and universities is likely in considerable part to disappear as we come to foster and maintain only sizable junior college units. With a number of junior colleges in each state, however, there will be few so large as to

parallel the situation that develops the attitude of unconcern toward the individual students, and brings on the "depersonalization" which long since began to characterize the institutions affected by the "freshman flood." (8) Another element of superiority of the junior college is and will be more and more the better opportunities in it for laboratory practice in leadership for students on this level provided by the fact that there are no upperclassmen who in other higher institutions are usually elected to most positions of student responsibility.

(9) The junior college movement has the support also of apparently inevitable forces of reorganization in higher education. Originating impulses here were the advancing age of the college entrant, the downward shift of materials of collegiate instruction, and the accompanying increase of entrance requirements, all of which provided the student with approximately two more years of general training than was formerly received by the time he had reached any given year point in his college career. Upon the heels of these changes have come others in harmony with them. One of these was the changing organization of college curricula which moved from complete prescription to almost complete election and then to the prescription of a major subject which the student almost always looks upon as occupational specialization and in the majority of instances makes use of occupationally subsequent to graduation. Others are the accommodations which most colleges make to the desires of students for shortened periods of non-occupational training, the trend of enrolment in higher institutions which is reducing the proportions of students in the last two years of colleges of liberal arts whether these are in separate institutions or parts of universities, the line of cleavage appearing in universities between sophomore and junior years, etc. Junior college reorganization is also sustained by the argument of analogy with French and German school systems, since the latter include within the secondary school and the unit underlying it the whole of the period of general education, the university giving itself over entirely to specialization. The student of the gymnasium appears to be, at the time of completion of his curriculum, typically of the same age as the American college freshman or sophomore.

(10) Finally, the materials presented in Part IV constitute a cogent argument for the junior college movement, since they show not only a large extent of similarity and identity of work in the high school and on the junior college level in colleges and universities, but also a large amount of actual repetition for the individual student. To achieve the organization and co-ordination of courses on these two levels designed to economize time and assure proper sequence, it is imperative that junior colleges be developed in intimate association with the high school work below.

The special purposes of the junior college.—The rather extended list of advantages of the junior college as just epitomized are readily transmutable

into its special or distinctive purposes, and will be hereafter so designated. As justified up to this point, these purposes may be restated as follows:

1. To give the first two years of curricula (A) in liberal arts and (B) in preprofessional and professional work (where these professional curricula begin with the first college year).

2. To assure instruction as good as, or better than, that on the same level in other higher institutions.

3. To provide terminal general education for those who cannot or should not go on to higher levels of training.

4. To develop lines of semiprofessional training.

5. To popularize higher education.

6. To make possible the extension of home influences during immaturity.

7. To afford more attention to the individual student.

8. To improve the opportunities for laboratory practice in leadership.

9. To foster the inevitable reorganization of secondary and higher education.

10. To bring together into a single institution all work essentially similar in order to effect a better organization of courses and obviate wasteful duplication.

It is desirable to point out that a few of these purposes are not distinctive in the same degree as are the remainder. Reference is made in particular here to Nos. 1 and 2. What subtracts from their distinctiveness is the fact that they are now being performed in our traditional types of higher institutions. There are grounds, however, for retaining them as parts of the complete list, since, if they cannot be accomplished, there would be no point in the acceptance of attempts at the performance of most of the others.

II. Evaluating the Main Types of Junior Colleges

The plan of evaluation.—As the type or types of junior colleges to be encouraged should be those which will most effectively perform the special purposes of the institution, the logical procedure in evaluation must be the examination of each of the types in the light of the likelihood of such performance. This procedure will here be followed. The measure of likelihood is afforded for the most part in the materials of foregoing parts of this report, but additional data will be introduced at several points at which pertinent materials are available. Only three main types of junior colleges will first come in for concurrent scrutiny. These are (a) junior colleges in city or high school districts, referred to here as *public* junior colleges, (b) *private* junior colleges, and (c) those maintained in connection with normal schools and teachers colleges, referred to as *normal school* junior colleges. Certain considerations bearing on the desirability or undesirability of the second and third types will, however, be presented subsequently to the con-

current canvass. Evaluation of additional types will also be separately accomplished.

Performing the special purposes in public, private, and normal school junior colleges.—(1) The stronger junior colleges in all three types may be judged from data presented in Chapter III to qualify on the former of the two aspects of the first special purpose, *giving the first two years of curricula (A) in liberal arts and (B) in preprofessional and professional work.* On the basis of average offerings (see Table VI), public junior colleges lead the private to some extent, the latter dropping somewhat more below the point of feasibility than the former. Special figures are not presented for normal school junior colleges, but the writer's visits to institutions of this type assure him that these will tend to qualify as readily on this score as the better junior colleges in city and high school districts. But to justify the tentative minimum liberal arts offering of 225 to 250 semester hours on economic and other grounds, Chapter XXXIX suggests the desirability of a minimum of approximately 150 liberal arts students, which is not attained by a large proportion of any type of junior college at the present time.

Strong junior colleges of all three types should also be able, if we may judge from the findings of Chapter IV, to rise to the needs of the performance of the second aspect of this purpose. Public junior colleges are seen to have made more progress in this direction than private. One reason for this is that the former are universally coeducational, whereas the latter are in a large proportion of instances segregated, and more especially women's institutions. Since professionalization of women's training is lagging behind men's, private junior colleges have less of a problem in measuring up to requirements in this regard. At the same time the fact that private junior colleges are in such large proportions institutions for women only does not lead to an expectation of early and general performance of this purpose for *men.* The private coeducational junior colleges are less well equipped at the present than are the public to care for the preprofessional requirements of both sexes. The provision of this work in normal school junior colleges, on whose course offerings no data have been presented, are fully as certain as the public group to be able to qualify on these requirements. Numbers again being necessary to justify such offerings, a sizable student body is essential. On this score, as has already been indicated, the public and normal school units are somewhat in advance of the private, although there should be a marked increase in average enrolments in all units to bring the fifty to one hundred additional students to warrant the provision of the additional courses pointed out in Chapter IV as needed for the special groups concerned.

(2) The trend of the evidence in Chapters XII and XIII is that the public and normal school junior colleges are in a somewhat better position than are the private units *to assure instruction as good as or better than that*

on the same level in higher institutions. The advantage is in matters like length of graduate training, experience, salary, and observed teaching. Some private junior colleges would make a better showing in certain of these respects than some public and normal school units, but as a group they lag somewhat behind. This means, of course, that if the private junior college aspires to achieve the purpose, it has farther to go than the other types, but it does not mean that the latter have no further progress to make.

In order to provide teachers with anything like adequate preparation in all desirable fields of training, especially those like the social subjects in which the total offering is now not as large as in subjects like English, French, etc., junior colleges will need to have very large enrolments or arrange for having teachers give instruction in their own or related fields in some other associated educational unit. This is practicable in public junior colleges because of their association with secondary schools below. It is practicable also in normal school units because of the need of work in some of these lines in teacher-training curricula. It is less so in many private junior colleges because, as will be shown in evaluating types by means of the last purpose (No. 10 below), there has been a marked tendency toward atrophy of the academies or high schools associated with them. In striving to achieve this purpose the private junior college will have this additional obstacle to overcome.

(3) All institutions whose curricula end with the sophomore college year will be more disposed than are our colleges and universities to *provide appropriate terminal general education for those who cannot or should not go on to higher levels of training.* Therefore, all types of junior colleges unassociated with institutions where work on higher levels is available can qualify on this requirement. This statement, however, implies only qualified approval of junior college units with plans or aspirations for upward extension to include senior college years. Responses on this point from heads of public and private junior colleges show that 16 and 42 per cent, respectively, entertain such aspirations. The proportion for the former group is negligible and concerns only junior colleges in large cities, but for the latter it concerns a proportion sufficiently large to be discouraging. It is evidence that a large proportion of the heads of private units still look longingly at the four-year college status. To the extent that this is true, it will tend to disqualify this type of unit for the performance of the special purpose under consideration, and this for somewhat the same reason that four-year colleges and universities are disqualified: their focus of attention is upon the longer curriculum and not upon the needs of students not going beyond the junior college level. This same disqualification applies to normal schools with teachers college aspirations. In such of these normal schools as become teachers colleges, however, until their students come to be enrolled predominantly in the four-year curricula—which will

not transpire for many years or even decades—the well-established habit of looking upon the first two years beyond the high school as culminal years will to some extent foster the performance of this purpose. Nevertheless, the presence of the longer curricula must gradually lessen the realizability of this important special function.

The fact that certain portions of Chapter VI show somewhat lower median Army Alpha test scores for private than for public junior colleges does not signify that the former are making more progress toward mental democratization of higher education. The difference is to be explained by the fact that most of the private units represented are women's institutions and are so located as to draw students from southern states with eleven-year rather than twelve-year school systems. There are reasons for not expecting the private junior colleges to foster this type of popularization as much as public units. One of these is the fact that they *are* private and, therefore, less responsive to popular demand for democratic adjustments. A more cogent reason is the less local character of their student bodies. The public junior college, being in its nature more largely a creature of the local constituency, should come to serve a wider range of the mentality represented in the community.

(4) The junior colleges unattached to four-year colleges and universities will also, and for the same reason that they will hasten the provision of terminal general education for those who cannot or should not go on, be first in *developing semiprofessional lines of training.* As between public and private units, the advantage in this respect will come to rest with public institutions, just as the development of vocational training has been more vigorous in public than in private secondary schools. Occasional public junior colleges have already made a beginning. Private junior colleges have, however, shown a larger development in home economics and teacher preparation (see Table VI in Chapter III). The growth in the former field is explained by the proportions of women's institutions represented.

The teacher-training function of junior colleges deserves special consideration. A study of the distribution of recent graduates of 6 public, 7 northern private (mostly in Missouri), 8 southern private, and 2 normal school junior colleges shows the following percentages, irrespective of sex, engaged in teaching: respectively, 1.3, 43.3, 41.8, and 13.7. Corresponding percentages for women only are 2.0, 45.4, 55.1, and 16.7. Some private institutions send negligible proportions of their graduates into teaching work immediately upon completion of their junior college work, but these could be matched by others almost all of whose graduates enter this work. More commonly it is elementary school teaching, but sometimes it is high school teaching into which these graduates go. For instance, two thirds of the graduates of one junior college entered teaching, and of this proportion fully two thirds went into high school work. Little can be said in

favor of this semiprofessional training function characteristic of private junior colleges, except that it may be justified as a temporary expedient in view of a dearth in the states represented of teachers properly prepared for the work upon which these junior college graduates enter. As nothing short of four-year college graduation should be countenanced for high school teaching, junior college graduates should not be permitted to qualify for it without further training. For elementary school teaching the training received in junior colleges is not suitable; the two-year course in the normal school is much to be preferred to it. It is obvious that the semi-professional teacher-training function of the private junior college, although at present its predominant one, is hardly legitimate and affords no satisfactory permanent field of service for that unit. As standards of teacher preparation become more discriminating, the best that may be expected is that this function will become preprofessional in character.

(5) The lower cost of education in the public junior college as shown in Chapter VII puts that type of unit in a better position than the private institution *to popularize higher education.* Whatever is said for the public junior college in this connection appears to be just as applicable to the normal school type. If we may judge from the proportions of the catalogues proposing this as an advantage of the new unit, as seen under Purpose 4 in Table V and Figure 4 of Chapter II, those in authority in private junior colleges much less frequently aspire to achieve this purpose.

Whether the public junior college is in a better position to achieve this purpose owing to the advantage of propinquity is not as easily determinable. Direct comparison of the power to attract from the community of location of public and private junior colleges has been hindered by several factors. One of these is the size of communities in which the two types are to be found. Public units are often found in cities of larger size. To make a comparison possible, as may be seen in the chapter next following, homogeneity of size of cities compared is essential. Then, too, the private schools are often segregated institutions, while the public units are always coeducational. Again, many of the former are in localities with large negro populations whom the junior colleges do not plan to serve. Lastly, there is often more than one institution in a community giving work on this level, and it is not always possible to secure the data for such a study from all units to be found in the city. Although computations of the sort referred to were made, the numbers of private junior colleges finally represented turned out to be so small and scattered as to invalidate the results.

Comparison was next essayed between the numbers in each 1000 of the population represented by those from the local community enrolled in public junior colleges and by those enrolled in the first two years of standard four-year colleges in the Middle West. For this purpose only institutions in cities of 10,000 to 70,000 population were considered. The average of these

measures for 9 public junior colleges was 3.8, while the range was from .76 to 8.9. The corresponding measures for 14 standard colleges, freshman and sophomore years only, were 3.1 and .4 to 5.8. This shows some tendency to larger proportions for the public institutions. At one point in the subsequent chapter it is shown that in the present state of development of public junior colleges they hold smaller percentages than do four-year institutions into the sophomore college year. If it is assumed that the new unit will come in time to hold as large a percentage into this year as does the standard college—a reasonable assumption for the time when they are more firmly established—the typical difference between public and private junior colleges in the proportions of the population attending will be almost certain to be greater than as shown above, especially in view of the fact that there is typically no tuition charge for attendance upon the public junior college.

A factor operating to reduce the proportions of the population of the local community enrolling in private junior colleges is their denominationalism. This is reflected in a comparison of the denominational distributions of the mothers of students in public and private junior colleges in Tables CCIV and CCV. For the purposes of this comparison students were asked to indicate on a blank used for other portions of this investigation the church memberships or preferences of both parents. Responses of this sort were available for 15 public and 7 private institutions. These schools have been arranged in their respective tables in the order of the percentage of mothers of the denominations most frequently reported. For Public Junior College A, for example, the most common church membership or preference was Methodist and was reported by 57, or 20.4 per cent of the students responding. More than two thirds of the students reporting from this institution—191, or 68.2 per cent, to be exact—reported 17 other denominations. Approximately a ninth failed to answer on this point or indicated that the mother had no membership or preference.

A glance down the second column of figures in this table will show that the percentages for the most common denominations in public junior colleges ranged from 20.4 to 36.1, or from approximately a fifth to well over a third. The percentage for all schools at the foot of the column is 27.9, somewhat in excess of a fourth of all mothers represented. A similar examination of Table CCV discloses a range of 27.3 to 93.9 per cent, with a percentage of 51.1—slightly more than a half—for all students represented. This is an average proportion in a single denomination almost twice as large as that for public junior colleges. In every instance for private junior colleges, the predominant denomination is that under whose auspices the institution is operating. The percentages of students with mothers of "other" denominational memberships or preferences for public and private junior colleges are, respectively, 62.9 and 35.3.

TABLE CCIV

NUMBERS AND PERCENTAGES OF MOTHERS OF STUDENTS IN PUBLIC JUNIOR COLLEGES HAVING MEMBERSHIP IN, OR PREFERENCE FOR, THE MOST COMMON DENOMINATION AND OTHER DENOMINATIONS

PUBLIC JUNIOR COLLEGES	MOST COMMON DENOMINATION			OTHER DENOMINATIONS		WITHOUT PREFERENCE OR NO ANSWER		TOTALS		
	Name	Number of Mothers	Per Cent	Number of Mothers	Per Cent	Number of Mothers	Per Cent	Number of Denominations	Number of Mothers	Per Cent
A	Methodist	57	20.4	191	68.2	32	11.4	18	280	100.0
B	Methodist	9[a]	25.7	21	60.0	5	14.3	6	35	100.0
C	Presbyterian	10	27.0	24	64.9	3	8.1	8	37	100.0
D	Catholic	21	28.4	44	59.5	9	12.2	9	74	100.1
E	Lutheran	8	28.6	18	64.3	2	7.2	6	28	100.1
F	Catholic	23	29.9	47	61.0	7	9.1	10	77	100.0
G	Lutheran	9	30.0	18	60.0	3	10.0	6	30	100.0
H	Methodist	28	30.8	58	63.7	5	5.5	12	91	100.0
I	Presbyterian	26	31.3	47	56.6	10	12.0	12	83	99.9
J	Methodist	25	31.6	51	64.7	3	3.8	9	79	100.1
K	Methodist	11	32.4	20	58.8	3	8.8	6	34	100.0
L	Methodist	13	33.3	26	66.7	..	..	10	39	100.0
M	Methodist	16	34.0	29	61.7	2	4.3	10	47	100.0
N	Presbyterian	9	36.0	12	48.0	4	16.0	7	25	100.0
O	Methodist	13	36.1	20	55.6	3	8.3	8	36	100.0
ALL		278	27.9	626	62.9	91	9.1	19	995	99.9

[a] An equal number of Presbyterians.

TABLE CCV

NUMBERS AND PERCENTAGES OF MOTHERS OF STUDENTS IN PRIVATE JUNIOR COLLEGES HAVING MEMBERSHIP IN, OR PREFERENCE FOR, THE MOST COMMON DENOMINATION AND OTHER DENOMINATIONS

PRIVATE JUNIOR COLLEGES	MOST COMMON DENOMINATION			OTHER DENOMINATIONS		WITHOUT PREFERENCE OR NO ANSWER		TOTALS		
	Name	Number of Mothers	Per Cent	Number of Mothers	Per Cent	Number of Mothers	Per Cent	Number of Denominations	Number of Mothers	Per Cent
P	Baptist	9	27.3	8	24.2	16	48.4	6	33	99.9
Q	Christian	45	36.0	26	20.8	54	43.2	8	125	100.0
R	Baptist	106	37.7	169	60.1	6	2.1	11	281	99.9
S	Christian	32	46.4	30	43.5	7	10.1	9	69	100.0
T	Presbyterian	14	66.7	6	28.6	1	4.8	3	21	100.0
U	Latter Day Saints	68	88.3	4	5.1	5	6.5	3	77	99.9
V	Christian Science	78	93.9	..	..	5	6.0	1	83	99.9
ALL	.....	352	51.1	243	35.3	94	13.6	13	689	100.0

The percentages for the most common denomination for Private Junior Colleges P and Q would have been considerably larger if a larger extent of response had been made. It happened that the conditions under which inquiry was made in these institutions were such as to secure answers on this point from a smaller proportion of the total number filling out the complete blank than for the remaining units. For fully 30 of the more than 40 per cent indicated in both these institutions as being "without preference or no answer" there was no answer. If these were distributed to the most common denomination and to other denominations in the proportion of those answering—a fair expectation—the former would have been raised in both instances to well over 40 per cent. This change of order places Private Junior College R at the head of the list in this respect. Its percentage may be seen to be only slightly higher than that for Public Junior Colleges N and O, the highest in the list of public units.

It is consequently apparent that the percentages in the predominant denomination in private junior colleges in some instances drop to something like those for public units. With the continued breakdown of denominationalism these lower percentages should become more characteristic, thus providing some assurance that these private institutions will be able in time to draw something like equivalent proportions of the local populations. At the same time, it should be borne in mind that this breakdown itself will remove one of the most influential of the arguments for education under private control.

Before leaving the consideration of the three main types of junior colleges from the standpoint of the likelihood of their performance of the function of popularization of higher education, it is also desirable to point out that if an institution is public, it is almost certain to make for an increase of the proportion of the population availing themselves of its opportunities. This has been found true for other public educational institutions like the high school and the state university and the force should be no less operative for the upward extension of public secondary education, especially, let it be repeated, since education in these public units is being typically provided free of cost or nearly so.

(6) All types of junior colleges will make possible *the extension of home influences during immaturity* to the extent that they serve local constituencies. In this respect the public junior college, because it is at present almost exclusively locally patronized, is easily the leader. Judging from what was shown in evaluating the three types in terms of the purpose immediately preceding, we may expect it and the normal school type to continue to lead in this respect. On the other hand, as is made clear in the following chapter, committal to a proper system of public junior colleges will call for units of such a size as to urge larger than present proportions of the total student body from without the community of location, which must to that

extent remove the possibility of performance of this function for all students. This fact advises caution in the matter of the selection of cities of location, so that at least the majority of the minimum practicable student body can be recruited from the immediate vicinity, especially since the performance of the function obviates loss of time between high school and college years and thus prevents delay in the student's progress through the school system.

Reference should be made here again to the statement found in catalogues of private junior colleges, mentioned in describing the claims classified under Purpose 5 in Table V and Figure 4 of Chapter II. They concern the provision in units of this type of an atmosphere and a social control not unlike that of the home. Such values would result from appropriate housing and dormitory facilities and a staff adequate and satisfactory for social and moral guidance. To the extent that institutions of any type have nonresident students such facilities should be at hand, and this will mean that, as public junior colleges come to be recognized as state rather than almost strictly local institutions, these will need also to be so equipped and staffed.

(7) In terms of the enrolments of junior colleges as shown in Chapter I (Table III and Figure 3) the possibility of *affording more attention to the individual student* than can be given in the larger colleges and universities places the three main types of institutions in the following order: private junior colleges, public junior colleges, and normal school junior colleges. At the same time it is apparent that few if any units of any type are too large to put adequate individual attention out of consideration. Furthermore, since the desirable minimum of something like two hundred students supported by the findings of this report must apply to such institutions irrespective of type, the reduction in opportunities for this kind of attention to the student must come to all alike. To argue for a minimum student body much smaller than that named is to argue for a relatively prohibitive cost level or the reduction of desirable course offerings.

(8) All three types of junior colleges here being considered should be able to qualify on the requirement for *improving the opportunities for laboratory practice in leadership,* with the exception of those teachers college units in which the number of third and fourth year students is large enough to prevent first and second year college students from winning opportunities for leadership in student activities, or in normal schools in which the teacher-training enrolment is relatively so large as to overwhelm the junior college group. The materials of Chapter XI indicate that the development of these activities has gone somewhat farther in private than in public units.

(9) The three types of junior colleges are unequally matched in their capacity *to foster the reorganization of secondary and higher education*

toward which it has been seen we are moving. The types unassociated with high schools below will make some slight contribution in this direction, but much more is to be expected from those maintained in connection with strong secondary schools. The logic of reorganization is to administer these junior college years as an upward extension of the units of our system now devoted primarily to general education and to avoid a multiplication of units in the system, rather than to make it even more unwieldy than it is at the present time. Complexity would be added by increasing the problems of articulation. That type of junior college is to be preferred which encourages the development of closely articulating units in a *coherent system* of general education. This is the public junior college which is all but universally developed in association with our public high schools.

Tested by this purpose the normal school junior colleges do not qualify because the tendency to elevate normal school standards has resulted in removing from most of them the high school work they once had. Only recently have those which are developing into teachers colleges taken steps to introduce high school work, and in these instances the aim is to provide practice facilities for high school teachers in training, and not to re-establish high school courses in terms of their former function of providing the foundation of general training for prospective elementary school teachers.

The private junior college also is handicapped in this respect, in that, as was foreshadowed in discussing Purpose 2, and as will be made clear in dealing with the next and last purpose, the academy or high school associated with it has in most cases become a relatively inconsequential concern.

(10) That we may *bring together into a single institution all work essentially similar in order to effect a better organization of courses and obviate wasteful duplication,* it is just as essential, if not more so, in achieving the foregoing purpose to avail ourselves as a predominant practice of a type of junior college which permits close association with the work of the high school years immediately below. As already stated, this is the public junior college in city and high school districts. The normal school and private types cannot serve as well in this important respect. The reason for this ineptitude in the case of the former type is that its high school work is in most instances gone, and in the latter, that, if not gone, it is going.

The fact that it is gone or going from the normal school is so well known as not to require mention. Some notion of what is happening in private secondary education may be had from the facts presented by Bonner, who showed that the public secondary school has been gaining steadily on the private since 1890. From that date until 1918 the percentage which public high schools are of all institutions of this grade increased from 60.8 to 87.2, while the percentage of students enrolled in these public institutions mounted from 68.1 to 91.2.[1] With the trend so markedly in this direction,

[1] H. R. Bonner, Statistics of Public High Schools, 1917-18. *United States Bureau of Education Bulletin,* 1920, No. 19, pp. 11 and 16.

it is hardly to be anticipated that the tide could be set sufficiently in the opposite direction to assure the large secondary school enrolments desirable for the performance of the function in question.

TABLE CCVI

NUMBERS OF SENIORS IN HIGH SCHOOLS WITH WHICH PUBLIC JUNIOR COLLEGES ARE CONNECTED, NUMBERS OF JUNIOR COLLEGE FRESHMEN, AND THE PERCENTAGES THE FORMER ARE OF THE LATTER

PUBLIC JUNIOR COLLEGES	1. NUMBER OF HIGH SCHOOL SENIORS	2. NUMBER OF JUNIOR COLLEGE FRESHMEN	3. PER CENT 1 IS OF 2
A	151	172	87.8
B	115	120	95.8
C	79	48	164.6
D	115	61	188.5
E	109	49	222.4
F	238	102	233.3
G	39	16	243.8
H	292	111	263.1
I	167	62	269.4
J	149	55	271.0
K	105	37	283.8
L	119	32	371.9
M	144	36	400.0
N	96	19	505.3
O	340	53	641.5
ALL	2258	973	232.1

A more direct measure of present possibilities in private institutions compared with public is afforded in Tables CCVI and CCVII. These show the numbers of students enrolled in senior high school and freshman college classes and the percentages the former are of the latter in public and private junior colleges visited by the writer during the school year 1921-22. The data presented were collected at the time of visiting these schools. The institutions in each of the tables are arranged in the order of the percentages the high school senior are of the freshman college enrolments. These percentages for public units range from 87.8 to 641.5, with an average of 232.1 for all institutions represented. For private junior colleges the range is 7.4 to 300.0, with an average of 46.8. The average for all private units is not far from a fifth that for public units. With the high school enrolment relatively so inconsequential in private institutions and with the tendency of the public secondary school to gain consistently on the private, the chances that the private unit will be in a position to qualify on the purpose being canvassed are not strong. However, it must

be admitted that some are in a position to meet this requirement at the present time. It may be said in passing that what has just been shown for institutions visited is not far from typical for unvisited schools, as is attested by facts gathered by questionnaire but not presented here.

TABLE CCVII

NUMBERS OF SENIORS IN HIGH SCHOOL ASSOCIATED WITH PRIVATE JUNIOR COLLEGES, NUMBERS OF JUNIOR COLLEGE FRESHMEN, AND THE PERCENTAGES THE FORMER ARE OF THE LATTER

PRIVATE JUNIOR COLLEGES	1. NUMBER OF HIGH SCHOOL SENIORS	2. NUMBER OF JUNIOR COLLEGE FRESHMEN	3. PER CENT 1 IS OF 2
A	15	204	7.4
B	15	69	21.7
C	17	64	26.6
D	17	63	27.0
E	21	75	28.0
F	50	140	35.8
G	19	46	41.3
H	20	44	45.5
I	7	14	50.0
J	8	14	57.1
K	17	28	60.7
L	31	51	60.8
M	16	20	80.0
N	55	61	90.2
O	33	34	97.1
P	8	8	100.0
Q	19	17	111.8
R	6	5	120.0
S	52	35	148.6
T	40	25	160.0
U	12	4	300.0
ALL	478	1021	46.8

III. THE NORMAL SCHOOL TYPE AS A SPECIAL PROBLEM

The problem.—There has been such a battle of words over the junior college in the normal schools that no evaluation of types would be regarded as complete without giving this question some special consideration. The argument has not centered around the point of *feasibility* of giving the junior college work in normal schools as much as the point of the *desirability* of doing so in view of an assumed violation of teacher-training functions of institutions with which the junior college units are associated. As this possible infringement on original functions has been claimed to express itself in several ways, it will be considered under two heads, the

possible inroads of the junior college upon (1) the available source of teacher-training student body (a) numerically and (b) in mentality and (2) the dominance of the professional attitudes in teacher-training institutions.

Does provision of junior college work cut in on the available supply of candidates for teacher-training?—It is a matter of common knowledge that higher institutions depend for a considerable proportion of their student bodies upon the youth of the community of location, and this dependence must characterize normal schools and teachers colleges at least as much as other types. In an important sense, therefore, the community of location of a normal school has an obligation to the state of providing a large proportion of the total number of candidates for teacher's certificates which should be trained in any particular normal school. This obligation must apply peculiarly at a time when there is a dearth of adequately trained teachers for elementary school work, preparation for which is the primary concern of the normal school. There is some justification for the statement that, to the extent that the offering of junior college courses attracts students away from the teacher-training curricula, they are not keeping faith with the purpose which brought the institutions into existence.

The question becomes one of the extent of the inroad. Efforts were made to secure a full array of pertinent data, but were thwarted by the difficulty of securing them for a sufficiently large number of normal schools with and without junior college units in communities homogeneous in respect to size. Certain facts assembled concerning the sex distribution of freshmen in two normal schools with junior colleges give an illuminating indirect answer to the question. These are presented in Table CCVIII. The "regular normal" curricula are those preparing for primary, intermediate, grammar grade, and rural school teaching. The high school teacher-training group are enrolled in the first year of three-year curricula preparing for work in smaller high schools. The "special" curricula are those for students planning to teach the special subjects. The two significant facts of this table are the predominance of men in the junior college group and the very small—almost negligible—proportion of this sex in the normal groups. The proportionate distribution of students from the local community is very similar. For example, of 75 students from the community of location in one of these institutions, 22 are enrolled in the regular normal, and 28 in the junior college, curriculum. One only of the 22 is a man, while but 6 of the 28 are women. It is known to all those in touch with normal school registration that the negligible proportion of men in the regular curricula is characteristic irrespective of the presence of a junior college offering. This fact, joined with the relatively small proportion of women in junior college curricula leads to the

conclusion that in these institutions the junior college curricula can make at most only moderate inroads on a potentially available teacher-training student body. Some, however, they must make.

TABLE CCVIII

DISTRIBUTION BY SEX AND CURRICULUM OF FIRST YEAR STUDENTS IN TWO NORMAL SCHOOLS IN WISCONSIN AND MEDIAN ARMY ALPHA TEST SCORE FOR EACH GROUP

CURRICULA	MEN		WOMEN		TOTAL	
	Number	Median Score	Number	Median Score	Number	Median Score
Regular normal	15	127.5	214	120.3	229	120.4
High school teacher-training	31	136.9	52	125.0	83	129.6
Special teacher-training ..	90	115.0	63	124.2	153	119.7
Junior college	66	134.2	21	141.3	87	135.4
TOTALS	202	127.0	350	123.3	552	124.5

Contact through visits to three other normal schools and teachers colleges with junior college units led the writer to the belief that the situation in them was in no large degree different from that just shown.

Does provision of junior college work reduce the quality of candidates for teacher-training?—This question has in large part been answered by inference from the foregoing, since, if the junior college enrolment is largely made up of men who but infrequently register for regular normal curricula, there could be nothing like a general tendency for the former to drain off the superior students, leaving the less capable for the latter. Nevertheless, as the question raised is an important one, results of mental tests given to the students so far represented and one other group will be presented for as much of an answer as can be essayed here.

The reader may have noted that Table CCVIII, in addition to reporting the numbers of students give the median score obtained on the Army Alpha Test (Form 7) by each group of students. Table CCIX goes farther for certain of the groups and gives also the distributions of these test scores for men and women in the regular normal and junior college groups for the two normal schools represented and for students in regular normal curricula from the local community and from outside this community in one of these institutions.[2] The distributions in the first and fourth pairs of distribution columns show again the relatively small numbers of men in the regular normal, and women in the junior college, curricula. The distributions for women in regular normal work and of men in the junior

[2] Complete data on residential distributions were not at hand for the other normal school.

college curriculum afford the first significant comparison, which is facilitated by Figure 95. The distribution and the medians for the latter are seen to be notably higher than the former, the difference being too large to be accounted for by the usual sex differences between men and women on the army test. The difference between these two groups, moreover, is without doubt the chief factor of the difference in median scores for regular normal and junior college groups to be seen in the last column of Table CCVIII.

TABLE CCIX

DISTRIBUTION OF SCORES OBTAINED ON THE ARMY ALPHA TEST (FORM 7) BY FIRST YEAR STUDENTS IN (A) REGULAR NORMAL AND (B) JUNIOR COLLEGE CURRICULA IN TWO NORMAL SCHOOLS OF WISCONSIN, AND (C) BY STUDENTS IN REGULAR NORMAL CURRICULA (1) FROM THE LOCAL COMMUNITY AND (2) FROM OUTSIDE IN ONE OF THESE INSTITUTIONS

SCORES	A. REGULAR NORMAL				B. JUNIOR COLLEGE				C. REGULAR NORMAL			
	Men		Women		Men		Women		1. Local Community		2. Outside	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
185-189	...	...	...	...	1	1.5	...	...	...	...	...	...
180-184	...	...	...	...	1	1.5	...	...	...	...	...	...
175-179	1	6.7	...	...	3	4.5	1	4.8	1	4.5	...	...
170-174	1	6.7	1	.5	3	4.5	1	4.8	...	...	...	...
165-169	...	...	3	1.4	1	1.5	...	...	...	...	2	1.8
160-164	...	...	8	3.7	2	3.0	...	...	...	...	5	4.6
155-159	1	6.7	5	2.3	5	7.6	4	18.9	...	...	1	.9
150-154	1	6.7	9	4.2	7	10.6	2	9.5	...	...	4	3.7
145-149	1	6.7	10	4.7	1	1.5	1	4.8	1	4.5	5	4.6
140-144	2	13.3	9	4.2	3	4.5	2	9.5	2	9.1	3	2.8
135-139	...	...	15	7.0	5	7.6	1	4.8	2	9.1	6	5.5
130-134	...	...	14	6.5	6	9.1	5	23.6	2	9.1	7	6.5
125-129	1	6.7	15	7.0	4	6.1	2	9.5	3	13.6	8	7.4
120-124	...	...	19	8.9	2	3.0	2	9.5	1	4.5	12	11.1
115-119	1	6.7	15	7.0	3	4.5	...	...	...	...	9	8.3
110-114	1	6.7	14	6.5	2	3.0	...	...	2	9.1	7	6.5
105-109	1	6.7	17	7.9	3	4.5	...	...	2	9.1	9	8.3
100-104	1	6.7	18	8.4	3	4.5	...	...	2	9.1	10	9.2
95- 99	1	6.7	12	5.6	1	1.5	...	...	1	4.5	6	5.5
90- 94	...	...	11	5.1	4	6.1	...	...	...	...	4	3.7
85- 89	...	...	4	1.9	1	1.5	...	...	...	...	2	1.8
80- 84	1	6.7	6	2.8	4	6.1	...	...	1	4.5	2	1.8
75- 79	1	6.7	2	.9	...	...	...	...	1	4.5	2	1.8
70- 74	...	...	3	1.4	...	...	...	...	...	...	2	1.8
65- 69	...	...	2	.9	1	1.5	...	...	...	...	2	1.8
60- 64	...	...	1	.5	...	...	...	...	...	...	...	...
50- 54	...	...	1	.5	...	...	...	...	1	4.5	...	...
TOTALS	15	100.5	214	99.8	66	99.7	21	99.7	22	99.7	108	99.4
MEDIANS	127.5		120.3		134.2		141.3		125.0		119.4	

While this is being admitted we should not lose sight of the high range of scores for women in the junior college group shown in Table CCIX. Not a single score of the 21 drops below 120, which is almost identical with the median score for the same sex in the regular normal group. At the same time the upper limits of the range are practically the same for these two groups of women. Certainly, although there are not many of them, women enrolling in the junior college curriculum are a selected group. It would not be at all surprising if some of these at least, were no opportunities for junior college work available, would otherwise have registered for regular normal work and thus tended to elevate in some measure the distribution and median scores for the group representing the original and principal concern of these institutions. Although the nature of the data cannot make certain of this, there is a strong presumption in its favor. On the other hand, if it were assumed that all these 21 women would have registered in regular normal curricula, which not even the most ardent champion of unadulterated teacher-training functions in normal schools could claim, the new median would have been only 122.9, not three points above women in regular normal work as shown.

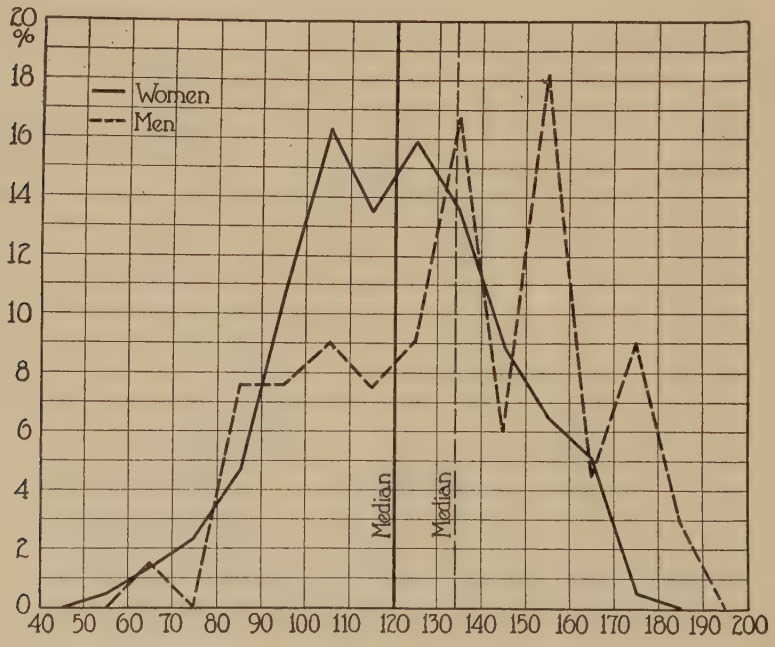

Figure 95

Percentage distribution of scores obtained on Army Alpha Test (Form 7) by women in regular normal, and men in junior college, curricula in two normal schools of Wisconsin

As the question may be raised as to whether the draining off from regular normal curricula of the superior minds assumed to follow the introduction of junior college work does not apply particularly to students from the community of location, the last two pairs of columns (C) have been introduced into Table CCIX. These, with Figure 96, afford a comparison of the distributions of scores for students in regular normal curricula from the community of location and from without this community in one of the two normal schools represented in other columns of the table. Before passing judgment the reader should bear in mind that there is at least one other line of work besides the junior college offering, i.e., the high school teacher-training curriculum, which in these normal schools is likely, as may be judged by median scores shown in Table CCVIII, to make inroads on the quality of the regular normal group. The validity of findings of the comparison is somewhat affected by the small number of students from the city of location, but there appears to be no such reduction in quality as suggested.

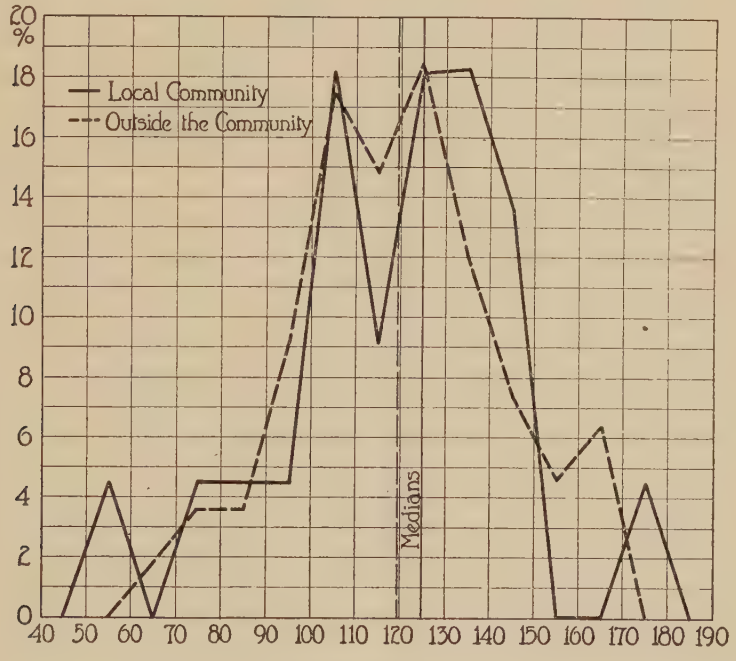

Figure 96

Percentage distribution of scores obtained on Army Alpha Test (Form 7) by students in regular normal curricula from the local community and from outside the community

TABLE CCX

DISTRIBUTION OF SCORES OBTAINED ON TERMAN GROUP INTELLIGENCE TEST (FORM A) BY FIRST YEAR STUDENTS IN TEACHERS COLLEGE AND JUNIOR COLLEGE CURRICULA IN SAN DIEGO TEACHERS COLLEGE, SEPTEMBER, 1921

SCORES	TEACHERS COLLEGE		JUNIOR COLLEGE			
	Women Only		Men		Women	
	Number	Per cent	Number	Per cent	Number	Per cent
210-214	...	...	1	1.8	...	...
205-209	...	...	...	...	...	...
200-204	...	...	2	3.6	...	...
195-199	1	1.5	5	9.0	2	3.9
190-194	3	4.6	7	12.5	...	...
185-189	3	4.6	4	7.2	1	1.9
180-184	3	4.6	3	5.4	7	7.7
175-179	5	7.7	5	9.0	3	5.8
170-174	2	3.1	7	12.5	1	1.9
165-169	2	3.1	2	3.6	6	11.6
160-164	9	13.8	3	5.4	3	5.8
155-159	2	3.1	2	3.6	1	1.9
150-154	4	6.2	...	...	3	5.8
145-149	8	12.3	1	1.8	7	13.4
140-144	1	1.5	3	5.4	5	9.6
135-139	2	3.1	4	7.2	2	3.9
130-134	2	3.1	...	...	2	3.9
125-129	3	4.6	1	1.8	1	1.9
120-124	1	1.5	2	3.6	5	9.6
115-119	7	10.8	1	1.8	1	1.9
110-114	1	1.5	1	1.8	1	1.9
105-109	2	3.1	...	...	...	...
100-104	...	...	...	...	1	1.9
95- 99	1	1.5	1	1.8	1	1.9
90- 94	...	...	...	...	...	...
85- 89	...	...	1	1.8	2	3.9
80- 84	...	...	...	...	...	...
75- 79	2	3.1	...	...	...	...
70- 74	...	...	...	...	...	...
65- 69	1	1.5	...	...	...	...
TOTALS	65	99.9	56	100.6	52	100.1
MEDIANS	151.9		174.3		148.6	

Comparison on the basis of mental test scores of students in teacher-training and junior college curricula in an institution similar in type to those of Wisconsin is made possible by Table CCX and Figure 97. The institution concerned is the San Diego, California, Teachers College. The original scores obtained on the Terman Group Intelligence Test (Form A) were made available to the writer by the authorities in charge, the giving

and scoring of the tests having been done by Mrs. Gertrude S. Bell, director of tests and measurements. At the time the test was given there were no men in the teachers college group, but, as may be seen at the foot of the three pairs of columns, there were 65 women in this group, and 56 and 52 men and women, respectively, in the junior college group. There seems, thus, to be a larger proportion of women in the junior college group than in Wisconsin, which suggests larger inroads on the available teacher-training student body, on the assumption that teacher-training curricula would attract most of the women registering in a given teacher-training institution. The distributions and medians indicate a marked superiority of junior college men over both junior college and teachers college women. These measures for the two groups of women are notably similar, indicating that, even if the provision of junior college curricula cuts in numerically on the available supply of candidates for teacher-training, it does not affect the quality as indicated by mental test scores.

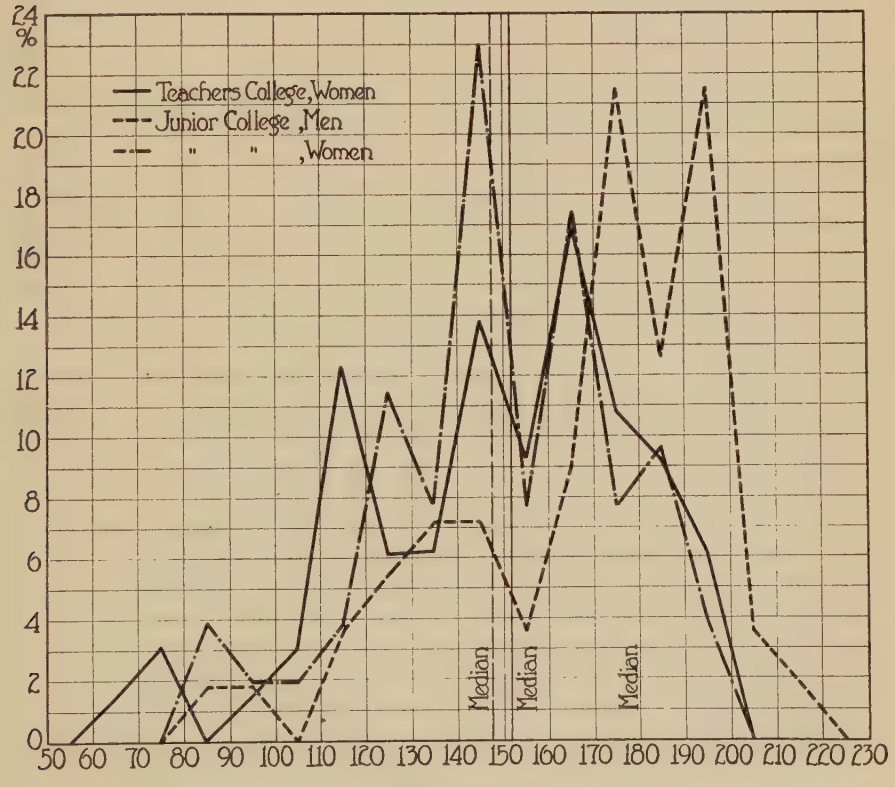

Figure 97

Percentage distribution of scores obtained on Terman Group Intelligence Test (Form A) by first year students in teachers college, and junior college, curricula in San Diego Teachers College

The conclusion to be drawn from the materials presented touching the two institutions in Wisconsin and that in California is, that, although there is some likelihood that the establishment of junior college curricula in normal schools and teachers colleges tends to affect to some extent unfavorably the number or the quality of candidates for teacher-training curricula, the testimony seems not to be particularly damaging to junior college units of this type. This degree of detriment alone seems not to be sufficiently large to discredit the normal school junior college.

Other considerations pro and con.—Various objections other than those so far treated have been raised against the establishment of junior college work in normal schools, and many arguments have been mustered in its behalf. Few if any of them in the early stages of experience with this type of unit are to be accepted or denied on grounds objectively ascertained, but this does not excuse us from giving those commonly recurring some measure of scrutiny. The complaints of those who oppose the movement as it affects normal schools center about the conservation of the primary function of a teacher-training institution. Says one writer,

> The normal school was created for a special purpose. Its existence is justified on the grounds of peculiar adaptation to the ends it serves, the preparation of teachers. . . . . The normal school activities should be a sort of specialized industry, not an educational department store.[3]

All of this writer's subsequent arguments are to the effect that introducing junior college curricula impairs the performance of this primary function.

> The normal school should be an institution of characteristic professional atmosphere. It is my observation and belief that no academic college can produce from a department of education therein . . . teachers with that ready skill, pedagogical insight, and professional mind-set that a good single-purpose normal school gives. . . . The junior college, as an adjunct, has nothing in common with the professional school for teachers. The student in the junior college probably has no well-defined, specific end in view; or, if he has, that end is far removed. . . . He is a bird of passage, a preparatory student for the university or senior college. . . . The normal school will lose prestige when it assumes to prepare for these.[4]

Perhaps the most complete and at the same time briefest attempt to answer such objections that has so far made its appearance is that by President Maxwell, from whose defense of the junior college in the normal school we quote:

> Our junior-college work supplements and aids the professional training of teachers in the following ways:
>
> 1. It provides a broader scholastic foundation for prospective teachers who plan to do departmental or higher grade work, or to teach in the junior high school. . . .

[3] E. L. Silver, Should the Normal School Function As a Junior College? *National School Digest* 40: 556, 582. May, 1921.

[4] *Loc. cit.*

2. The prospective teacher with ambition to pursue special fields in later university study, seeks the privilege of beginning his studies in the normal school. . . .

3. Our junior-college work provides the opportunity and emphasizes the necessity for higher scholarship for teachers. . . .

4. The junior-college work leads naturally and effectively into the four-year professional curriculum for teachers and supervisors in elementary education. . . . The four-year teacher-training curriculum of the near future will therefore rest upon the two basic years of general culture which now form the junior college. *When the four-year teacher-training curriculum comes, the junior college will be superseded though not abandoned. During the transition period the junior college is a desirable means of making the curriculum or content subjects "pay for themselves." When normal schools become four-year colleges with power to grant degrees, their junior colleges, as such, will be absorbed.*[5]

5. Our junior-college work has brought three and four times as many young men into elementary education as were previously preparing for this form of service. . . .

6. The presence of young men in the normal school (brought about by the junior-college work) tends to promote a saner atmosphere among the young women students. . . .

7. The junior-college group foster athletics and other school enterprises and develop and justify a school enthusiasm and *esprit de corps* that are a boon to every prospective teacher.

8. The junior-college work has a definitely stimulating effect upon the faculty of the institution. It enables the school to secure more scholarly men and women and to hold them longer against the competition of larger and stronger institutions. . . .[6]

Before passing on to a critique of these arguments it is apposite to cite certain factual materials which have come to the attention of the writer related to the fifth claim put forward by President Maxwell, the increase in the number of men entering educational work. They are in harmony with evidence which may be secured in all normal schools and teachers colleges having some curricula more than two years in length. The facts are these: of the fifty-one junior college graduates of 1921 in the two Wisconsin normal schools represented in other portions of the current chapter, eighteen transferred at the opening of the next year to the third year of the high school teacher-training curricula. All but two of these transfers were men. Other students, most of them men, transferred to these curricula before completing the two years of junior college work.

Although the writer spent a number of days visiting five normal schools and teachers colleges in which junior college units are maintained, endeavoring to discover both in class and out evidences of untoward influences on the teacher-training function, he became aware of few, if any. Perhaps these detrimental effects are of a sort to elude observation during the brief stay of a day or two in each of five institutions, but little was seen over

[5] The italics are the present writer's.

[6] Guy E. Maxwell, The Junior College Question—The Other Side. *National School Digest* 40: 600. June, 1921.

which to become exorcised. Perhaps also the position of dominance in numbers and traditions which teacher-training groups still hold in these particular institutions is instrumental in checking any hurtful influences, and these would not manifest themselves until such time as the junior college exceeds the teacher-training registration. Instead of its being detrimental, the visitor felt that the junior college was as a whole positive in its effect upon the primary function of the institutions visited.

But even should all these arguments favorable to the establishment of junior college units in normal schools be accepted at par, they do not make a strong case for this type when compared with others *from the viewpoint of junior college functioning.* These arguments have one characteristic in common: they would convince us that the *junior college will make for an improved teacher-training institution.* While a teacher-training situation superior to our present one is sincerely to be desired, the primary purpose of the new unit is certainly not that which the champions of its establishment in normal schools, if we may judge by their emphasis, would make it. The junior college has fundamental purposes that far transcend this one, however important it be regarded.

This tendency on the part of normal school authorities to lose sight of the real functions of the junior college is strikingly illustrated in the italicized portions of the fourth point made in the quotation above. The junior college is there seen as a stepping-stone for the normal school on its way to the status of teachers college. After the latter consummation, the junior college is "absorbed." And after this absorption has taken place, where is this new unit which we have seen to possess qualities which warrant assigning it a *permanent* place in the school system?

That the opinion of this teachers college president works out as a tendency is shown in what is transpiring in Wisconsin normal schools as related in Chapter I. Given authority in 1911 to establish junior college curricula, they are now ready to relinquish the claims to being junior colleges and are asking to be made four-year teachers colleges with power to grant degrees.

There is here no desire to deny the right to some stronger normal schools as the need arises to be raised to the rank of teachers colleges. This development for many is doubtless inevitable in the evolution of the American school system and in the elevation of standards in the teaching profession. The objection raised is solely to the abuse of an institution which is deserving to be established under auspices that will assure it a longer life. This ambition to extend curricula beyond the second year college level the normal schools have in common with two fifths of the private junior colleges, as reported earlier in the chapter. To the extent that the ambition is entertained and realizable, it disqualifies both types in the achievement of special purposes of the junior college, since it encourages a focus of attention upon the longer curricula in much the same sense as is now the case in colleges and universities.

Concluding comment.—Special examination of the junior college situation both present and prospective in normal schools indicates that, although some small inroads upon the teacher-training function are likely to be made by reducing the numbers and quality of those entering the teacher-training curricula, this disadvantage is almost certain to be offset by improvement in performing the function for which these normal schools were established. This interpretation may be expected to be applicable only as long as the teacher-training groups in institutions maintaining junior colleges predominate numerically. Simultaneously, however, because these institutions have their eyes on the four-year teachers college as a goal, the hope must be a dwindling one that they will look out for the continued performance of those special purposes of a junior college dependent upon regarding the first two college years for an increasing proportion of students as terminal years. The fact should not be overlooked, moreover, that this type of unit is disqualified because it cannot also perform the ninth and tenth purposes listed on page 538, the achievement of which depends upon the close association of junior college years with those immediately below. To perform these it would be necessary for these institutions to revert to the status from which they have so long endeavored to be emancipated, the status of the secondary school.

IV. Further Consideration of the Private Junior College

In the comparison involved in the evaluation of the three main types of junior colleges at a previous point in this chapter the private junior college did not fare very well, either in terms of its present state or its prospective development. This degree of disparagement, because of its relative character, is likely to undervalue the opportunities for service of this type of unit in the current educational situation. In all fairness it should be admitted that many private junior colleges are in a position to render a really estimable service for decades to come. They will do this not only in the educational opportunities afforded, but also in their contribution to the popularization of the junior college idea.

Our gratitude for these benefits should not, however, blind us to the limitations as indicated nor to the need of rectifying certain current untoward conditions. One of the chief hindrances to wider service of private junior colleges is the present cost to the student, particularly to the student who leaves home to attend. This cost is actually rather low in some private junior colleges, but we have seen that the trend is for attendance in these units to be more expensive than in standard higher institutions. The means of reduction must be in sources other than student fees, and this requires endowments, with which private junior colleges are too meagerly supplied, and more generous church support. And, as endowments come, it is essential that the authorities in charge remain loyal to the junior college idea and

do not yield to the temptation we know to exist to betray it by adding senior college years just as soon as the financial conditions can be stretched to the point of warranting the move.

One element of costs of maintaining private junior colleges deserves special emphasis here, as, under present financial conditions in these schools, it is bound to be carried ultimately by the student in attendance or other person bearing the burden of such attendance. This is the cost of publicity. A large proportion of private junior colleges have what seem to the writer extraordinarily heavy budget items to cover this charge. Expenditures along these lines as ascertained by personal inquiry in nine institutions were found to total between $35,000 and $36,000, not including stenographic assistance. The items included are the cost of catalogues, view books, advertising in church and secular periodicals, salaries and expenses of personal solicitors, etc. As the total enrolment in high school and junior college departments in these nine institutions was 1434, this means an average expenditure for these items of between $24 and $25 per student of these classifications. Including students who enroll for special work only would bring a somewhat lower average cost. For a few private units visited the cost for publicity was almost negligible. For others in this group of nine this cost mounted to more than an average of $40 when computed as described.

Some idea of the significance of such expenditures may be gained from the contrast with costs of publicity in public junior colleges. For eight institutions of this type the total outlay for items of this sort—almost exclusively for modest bulletins or catalogues—was $463. As in these units this expenditure is made for junior college students only, who numbered 666, this is an average cost of hardly 70 cents per student. This contrast urges efforts in private junior colleges to bring down expenditures along these lines, thus making possible a reduction in costs to the student or diversion of a larger proportion of all funds available to the educational functions of the school.

Two occasional additional hindrances to performing in any genuine way the special purposes of the junior college in private institutions are to be found in the fact that, as mentioned in Chapter I, some are strictly private venture schools, and the further fact that some still retain undesirable characteristics of the obsolescent "finishing school." The former turns out to be an obstruction because of the obvious ineptitude to the performance of several significant junior college purposes in schools which are looked upon by those who direct them as commercial enterprises. The latter hinders for reasons somewhat similar and because of the fact that the finishing school is not disposed to adjust itself to the performance of legitimate educational functions. The private junior college movement will do well to avoid these two incompatible influences.

V. Other Types of Junior Colleges

The remaining types.—Only the three predominant forms of the junior college have been evaluated up to this point of the current chapter. These are the public (in city and high school districts), normal school, and private types. There are, however, further variations of form taken by the movement or proposed for it which demand some consideration. Some of these have been listed as junior colleges on state foundations and, therefore, grouped with those of the normal school type in Chapter I and Appendix A. Most of these are either avowedly or essentially branches of other state higher institutions, either of universities or of colleges of agriculture and mechanic arts. Other types are those maintained as lower divisions of universities, state and private, as described in Chapter XXII. In addition to these, one occasionally hears a proposal to provide a state system of well-distributed two-year junior college units unassociated with other schools, either lower or higher, now in existence.

Their evaluation.—Since the criteria have already been presented and applied to related types, evaluation of these additional forms taken by or proposed for the junior college can be accomplished in brief space.

The "branch" unit is not to be commended as an appropriately *typical* junior college. It should be undertaken only where the ultimate goal of the branch is admittedly the paralleling of certain lines at least of the upper levels of work in the parent institution or where the distribution of population is such as to urge it in preference to the type which is a part of the public secondary school. Sooner or later local ambitions and political pressure may bring a demand for upward extension and the state embarking on such a program will then face the necessity of supporting several co-ordinate higher institutions.

Because the public type is almost universally closely associated with the high school, it is much more certain to be conceived of as a part of the lower school system, and therefore, cannot in most instances logically aspire to senior college levels of training.

The branch type is especially to be deplored if it brings with it, as has been true in some instances, provisions for the high school work below. The function of our higher institutions is certainly not to set up a system of secondary schools competing with and duplicating the work of the state's system of high schools already in operation. On the other hand if the high school work below on this account should not and is not maintained in connection with these branch junior college units, we thwart the chances of reorganization and economy urged by the desirability of achieving Purposes 9 and 10 proposed for acceptance in a preceding section of this chapter. This type of junior college would increase rather than diminish the problems of articulation of the several units of our school system. This last reason should just as emphatically preclude serious consideration of the separate

type of junior college unit sometimes proposed, that is, the type unassociated with other schools in the system.

Concerning the type of junior college which is a lower division of present-day colleges and universities, it is scarcely necessary to say more than has been said in Chapter XXII or is implicit in the need of performance of most of the distinctive purposes of the junior college. Even if this line of cleavage in higher institutions becomes more prevalent than at present, as seems inevitable, most of the functions peculiar to the junior college must remain unachieved, unless other types maintained in connection with institutions terminating with the second college year are established and come in time to displace these years in our colleges and universities. This must apply especially to providing satisfactory terminal general education for those who cannot or should not go on, popularizing higher education, making possible the extension of home influences during immaturity, affording more attention to the individual student, improving the opportunities for laboratory practice in leadership, fostering the inevitable reorganization of secondary and higher education, and bringing together into a single institution all work essentially similar in order to effect a better organization of courses and obviate wasteful duplication. Although there are several reasons for advocating the line of cleavage to which reference is made, the highest commendation for it is, that it is a natural first step toward a surrender of work on this level to the enlarging secondary school below.

Many of the same considerations which urge the ultimate discontinuance of the first two years of work in the university and its provision in connection with strong secondary schools recommend against maintaining one of a system of junior colleges in a state as a part of its existing universities or other higher institutions. If provided in the community of location of such institutions, it should be as a part of this community's lower school system, just as now the high school work is not offered by the university, but by the community of location.

VI. The Logical Organization of Secondary Education

The problem of proper organization of the future secondary school.— The foregoing evaluation having shown the junior college maintained in connection with city and high school districts as the one best designed to achieve the purposes of the institution, the problem next centers about the appropriate means of incorporating it in our secondary school organization. It is obvious that this question cannot be settled without reference to other important tendencies toward reorganization of our systems of lower and secondary schools. Evidence accumulates to indicate that the older eight-four organization is rapidly passing and that in its place is coming a regrouping which provides for beginning the period of secondary education two years earlier than formerly, that is, with the seventh grade. For instance,

Superintendent Pratt, of Spokane, in a recent article[7] reports that of 60 cities with populations of 100,000 and over in the country from which replies to a questionnaire were received, 26 have junior high schools in operation and 20 more have them in various stages of preparation. "Only 14 cities merely say, without comment, that they do not have junior high schools." As these 60 replies were received from a total of 68 cities to which the blanks of inquiry were sent, there can be little doubt that, as Superintendent Pratt puts it, the "junior high school is . . . 'the coming plan of organization.'" His data indicate, also, that the almost universal grouping of the 6 high school years is 3 in the junior, and 3 in the senior, unit. This movement is making rapid gains also in cities of smaller size.

The six-four-four organization.—This marked tendency to extend the period of secondary education downward and to divide it into two units raises the question of the practicability of adding still another unit of two years at the top, thereby making for a three-unit secondary school with three years in each of the two lowest and two years in the last of the units. A much more sensible procedure seems to be the division of the full eight-year secondary school period into two units of four years each and administering them after a manner similar to that being followed with respect to our present-day junior and senior high schools.

This concept of a six-four-four organization of education is not without precedent in thought and practice. It was proposed in 1915 by a committee of the North Central Association of Colleges and Secondary Schools, a part of whose report is quoted:

> The main subdivisions of elementary and secondary education should therefore be as follows:
>
> First—The Elementary School, six grades.
>
> Second—The Lower Secondary, to include the Seventh, Eighth, Ninth, and Tenth years, of the usual school course.
>
> Third—The Upper Secondary, to include the present Eleventh and Twelfth Grades of the usual High Schools and the Freshman and Sophomore years of the usual American Colleges.
>
> Whether it will take a student four or three years to complete the curriculum of either of these stages of Secondary Education will depend upon whether he is able to carry at one time three or four studies and whether the school year consists of thirty-six or forty-eight weeks.
>
> The Lower Secondary should be so organized and administered as to make it possible for one who is preparing to enter the upper secondary to complete the curriculum in three years—whether others should take three or four or five years should depend on their individual needs and attainments.[8]

This report was adopted by the association.

[7] O. C. Pratt, Status of the Junior High School in Larger Cities. *School Review* 30:663-70. November, 1922.

[8] *Proceedings of the Twentieth Annual Meeting of the North Central Association of Colleges and Secondary Schools*, pp. 27-28.

Professor Miller, of the University of Wisconsin, principal of the Wisconsin high school, and Professor Proctor, of Leland Stanford Junior University, have more recently advocated an identical organization of these eight secondary school years,[9] the former proposing that the two units resulting bear the names now carried by the three-year units in the junior-senior organization.

The first public secondary schools to be organized in accordance with this plan are those of Hibbing, Minnesota. The school system in this city had since the opening of the school year in 1916 offered junior college work. Junior high school reorganization had also been effected. The coincidence of two influential facts precipitated the change resulting in the redistribution of grades referred to: the resignation of the high school principal and moving from the old building into a new plant designed to accommodate all students from the seventh through the fourteenth grades. A junior high school principal was appointed from the staff and placed in charge of the first four of these eight grades. The dean of the junior college was made head of the upper unit of four years. In this way was avoided the complexity of a situation involving three distinct educational units under three co-ordinate heads within the same secondary school.

Other approaches to precedents in practice of which the writer is cognizant are the length and arrangement of curricula in certain southern junior colleges and the two-cycle arrangment in the French lycée. Some of the former under private control in shifting from their previous organizations retained the name "senior" for the last class, which is now on a par with sophomore college classification, and the three names "junior," "sophomore," and "freshman" for the three classes next below. The Grubbs Vocational College and the John Tarleton Agricultural College, maintained as branches of the Agricultural and Mechanical College of Texas, also have curricula of similar length, students bearing the same classifications as those in the private institutions referred to. These four-year units correspond in length with the new senior high school proposed. The French lycée is to some extent similar in that it is constituted of two cycles, the first of four, and the second of three, years.

Some advantages of the organization proposed.—A glance at the accepted special purposes of the junior college will show that this method of incorporating the junior college years in the new secondary school is better designed to achieve some of them than is a three-three-two organization. This superiority would apply particularly to Nos. 3, 4, 5, 9, and 10. Certain other benefits would accrue, some of which should at least be mentioned. Related to Purposes 9 and 10 would be the extent to which the plan will

[9] H. L. Miller, The Junior College and Secondary Education. *Wisconsin Journal of Education*, pp. 47-51. March, 1922; and William M. Proctor, The Junior College and Educational Reorganization. *Educational Review* 65:275-20. May, 1923.

help to solve the problems of articulating the several units of the system. Related in turn to this advantage is the opportunity for economy of time to be afforded in the longer units in which this grouping results. This opportunity is anticipated in the quotation above from the report of the committee of the North Central Association as well as in the proposals of Professor Miller to which reference has been made. The economy suggested in both instances is that of the more rapid advancement of more capable students. Such a consummation affords broad grounds for accepting as valid the claims classified under Special Purpose 19 in Table V and Figure 4 of Chapter II, caring better for brighter high school students. In view of the large extent of repetition shown in Part IV to exist and an overlapping which must also obtain at other points in the full secondary school period included, there is little reason to doubt that the *typical* length of stay could be shortened in time by a full year or even more, and that ultimately a seven- or even a six-year secondary school period will result. If this is not accomplished we shall cover more ground in the same time, enriching the extended secondary school course, which is likewise a method of economizing time.

Both the types of economy are being achieved simultaneously at the present time in the Laboratory Schools of the School of Education of the University of Chicago, which have been taking over some of the work of the junior college years. The interested reader will find the economies described in brief as one of the major lines of experimentation on pages 17-19 in a recent publication of the Department of Education of the university bearing the title, "Studies in Secondary Education I."[10]

This four-four plan, providing as it does a terminal four-year unit, would compensate for the tendency the junior college movement has of breaking across for the student the four-year college course, a disruption we have seen in Chapter V to be deplored by authorities in separate colleges. The four-year senior secondary school unit will in time assure the desired continuity that will offset this loss—in fact, will more than offset it, since larger numbers will come to complete the full four-year curriculum than now remain throughout the college course. Although these values cannot be achieved at once, there is no occasion to fear that they are not ultimately attainable.

The last of the special values inherent in the four-year organization to which attention is directed is that looked for by those whose statements were classified under Special Purpose 18 in Table V and Figure 4 of Chapter II, "improving high school instruction." Some of the grounds for assurance on this score are the better teacher preparation in subject-matter that must follow in the wake of close association of the work in junior college

[10] *Supplementary Educational Monograph*, No. 24. Chicago: University of Chicago Press. January, 1923.

years with that immediately below, the higher standards of student performance in the upper years of the present high school period that should result from their contact with work in junior college years, and the better laboratory, library, and other facilities that will be at hand for use in connection with these upper years of high school work. At the same time, the division into units at the point indicated, between the tenth and eleventh grades, will prevent that confusion of standards of work that sometimes now manifests itself because students in lower high school and in junior college years are too closely associated in the same educational unit. The "contamination" of collegiate standards of work by association with lower levels feared by many in college circles will be thereby largely obviated.

Not essentially an immediate step.—The four-four organization recommended by this scrutiny as the more desirable one, although to be kept in mind as the final goal of a reorganized secondary school period, need not be the next step in communities which have not yet had experience with junior college work. In fact, valid reasons can be given for first proceeding to establish units of the type now current, which provide at least a partial separation of the high school and the junior college. Among these are the need of winning acceptance of the local constituency for the junior college work provided. With our college-going traditions it is difficult at first to induce some members of the community to believe that what they look upon as college work can really be given in a secondary school, and the maintenance for some time, at least until a new tradition of attendance at home has been established, of some lines of demarcation will assist in "selling" the work to both students and parents. The traditional separation is likewise temporarily desirable in some high school situations in order to establish a satisfactory pace of scholarship on the part of the student. The trend must inevitably be, nevertheless, toward welding the junior college years solidly and intimately to those immediately below, the point of juncture becoming indistinguishable.

VII. The Junior College and the Remaining Claims Made for It

The claims remaining undiscussed.—As early in this report as Chapter II there were presented the results of a canvass of all claims made for the junior college as far as these could be found in a wide range of literature dealing with the new unit, a range including periodicals, books, public and private junior college catalogues, etc. Up to this point in the current report, directly or indirectly, all but a small number of the claims made have been subjected to examination in the light of such data as were obtainable for the purpose. Those still remaining undiscussed are Numbers 9, 11, 20, and 21 appearing in Table V and Figure 4 in the chapter referred to. These are, respectively, allowing for exploration, making the secondary school period coincide with adolescence, offering work meeting local needs, and

affecting the cultural level of the community. Brief comment will now be made on the acceptability of these as special purposes and the relation of the types of junior colleges to their achievement.

The *exploratory* function of junior college years is probably to be accepted without debate. This is still a period during which students will make earlier contacts with types of materials of instruction they have thus far in their school careers left untouched, or have so inadequately explored as not to afford a sufficient basis of guidance as to future education and occupational destination. The fact that these years of work are admittedly for most students enrolled in them a part of their general education implies that they are at the same time a part of the period in which educational and vocational guidance of this and other sorts is essential. In a significant sense the period of guidance is the period of secondary education, and unfortunately, our present typical organization of education breaks across this period at two points, distributing the function to three distinct types of units. We should have little occasion for surprise, therefore, that the whole problem is so incompetently handled. Our hope for adequate performance of the function must rest in bringing the responsibilities largely into a single period of the school system, the secondary. This will be possible with downward and upward extension of secondary education as here proposed.

Evaluation of the claim that the junior college aids in *making the secondary school period coincide with adolescence* is not as easily accomplished. The reason for this is that we know so little about the characteristics of this period of life. What we do know is more pertinent to its point of onset than to its point of termination. We have, therefore, a better factual basis for deciding when secondary education should begin than when it should end, as far as this is to be determined by the period of adolescence. If the problem of the appropriate point for upper termination is broken up into the questions of when complete *physical, mental,* and *social* maturity arrives, and each of these is considered separately, we are only a little better off. On the first question we have evidence that growth in height, weight, chest girth, strength of forearm, etc., in girls slackens notably from the fourteenth to sixteenth years.[11] For boys the rapid increments extend beyond the typical ages of notable cessation for girls. This difference in the typical ages of the two sexes for the arrival of physical maturity tends to discredit the claim under consideration, since boys and girls arrive at particular grades in the secondary and higher schools at ages while not accurately, at least approximately, equivalent. The determination of the ages of arrival of mental and social maturity is so hedged about by difficulties that no statement can be ventured which is dependable and which will throw light on the problem of the proper point of termination of the secondary school period. The best that can be made is a loose general statement that

[11] B. T. Baldwin, The Physical Growth of Children from Birth to Maturity. University of Iowa Studies, *Studies in Child Welfare,* Vol. I, No. 1, Chap. V.

only a small proportion of students seem to be socially mature by the time of their graduation from high school, and that, if higher education began with the third college year, instead of the first, we should be dealing in universities with men and women rather than with boys and girls.

Claim 20, *offering work meeting local needs,* has some justification of acceptance in view of current junior college offerings. In this respect the public junior college shows greater responsiveness than does the private institution. The last claim, *influencing the cultural level of the community of location,* is admissible without extended argument, since the performance of this function is inherent in all worthy educational institutions.

Although most of these additional claims have something of validity, for the sake of keeping our problem as simple as possible they will not be placed in what is here used as a working list of special purposes of the junior college.

VIII. A Summary of the Evaluation of the Types of Junior Colleges

The method of summary.—A means of summarizing the foregoing evaluation of the several types of junior colleges is afforded in Figure 98, which at the left presents in somewhat abbreviated form the special purposes accepted in the earlier portions of the chapter and at the head the several types of institutions offering junior college work. It will be noted that among the latter have been included the "large college or university." The significant feature of the figure is its facilitation of a canvass of the relationship of each type of institution to the achievement of each of the special purposes. The degrees of relationship are indicated by crosshatching, single hatching, and leaving in outline the intersections of the special purposes with the columns under the types of institutions. Crosshatching signifies a high degree of assurance of achieving a special purpose; single hatching, a moderate but not high degree of assurance; space in outline, relatively little or no assurance. For example, we have a high degree of assurance that Purpose 1A, giving the first two years of liberal arts curricula, can be performed in all the types of institutions represented. The degree indicated has been determined by the facts presented in this report and the evaluation attempted in the current chapter. The writer feels that only occasionally, if at all, can exception be taken to the degrees of relationship shown. Disagreement could at most be on a few purposes only and for but a single step in the gradation of relationships.

A few comments of a miscellaneous character will be made before summarizing the results of the comparison afforded. It should be noted that for this figure the two aspects of Purpose 1 are separately considered. Reference has already been made to the fact that Purposes 1 and 2 are not

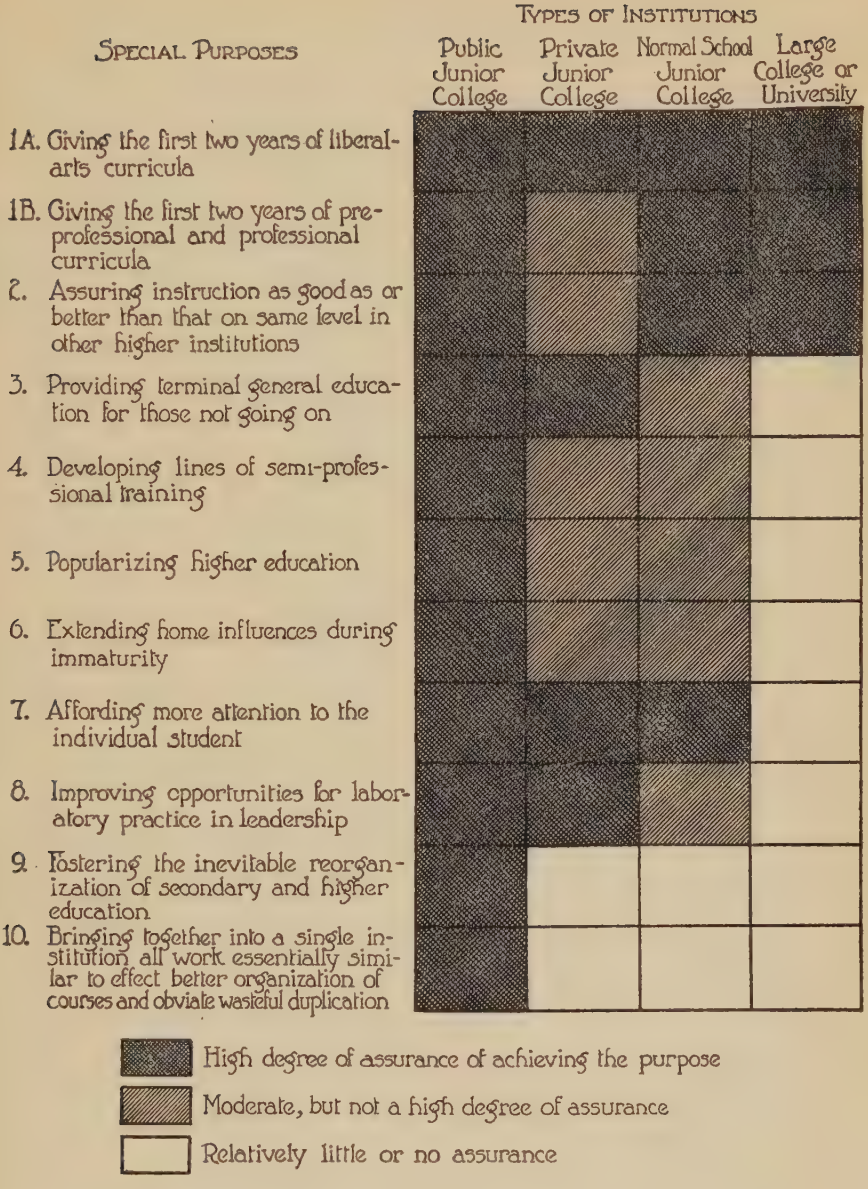
Types of Institutions
Special Purposes
Public Junior College
Private Junior College
Normal School Junior College
Large College or University
1A. Giving the first two years of liberal-arts curricula
1B. Giving the first two years of pre-professional and professional curricula
2. Assuring instruction as good as or better than that on same level in other higher institutions
3. Providing terminal general education for those not going on
4. Developing lines of semi-professional training
5. Popularizing higher education
6. Extending home influences during immaturity
7. Affording more attention to the individual student
8. Improving opportunities for laboratory practice in leadership
9. Fostering the inevitable reorganization of secondary and higher education
10. Bringing together into a single institution all work essentially similar to effect better organization of courses and obviate wasteful duplication
High degree of assurance of achieving the purpose
Moderate, but not a high degree of assurance
Relatively little or no assurance

Figure 98

Relationship of the types of institutions giving junior college work to the achievement of junior college purposes

to be looked upon as essentially "special" or distinctive of the junior college, but that the likelihood of their effective performance is so vital to the pertinence of the remaining functions that it is desirable to retain them in the list. Although junior college units on state foundations other than those maintained in connection with normal schools and teachers colleges are not given separate consideration in the figure, the judgments rendered on the normal school type are almost as applicable. The exceptions would tend to be for Purposes 3, 4, and 5, for which the degree of relationship might justifiably be raised to the next higher step. It is desirable also to point out that the degrees of relationship judged to apply concern the *type* of unit, rather than all individual representatives of the type.

The results of the comparison.—The continuity of crosshatching in the columns of spaces for the public junior college in Figure 98 indicates a high degree of assurance of the achievement by this type of unit of all the special purposes in the accepted list. The possibility of achieving all is not as complete for the private and the normal school types, although one or the other of the two highest degrees of relationship are judged to apply in all but the last two special purposes. Emphasis has already been laid upon the desirability of assuring the achievement of these two purposes because of their profoundly significant bearing on the full meaning of the junior college movement; reorganization would be inadequate indeed if it did not provide for their complete performance. The large proportions of unshaded spaces in the column headed "large college or university" calls attention again to the ineptitude of the typical present-day organization to the requirements of the situation. Only with reference to Purposes 1A, 1B and 2, those which have already been indicated as less distinctive of the junior college, do we find a high degree of assurance of achievement. It may be worth mentioning that, if the type of unit here considered were the "small college" and not the large college or university, the only additional purpose that would come in for recognition would be Number 7, affording more attention to the individual student.

CHAPTER XXXVIII

THE SOURCE OF THE STUDENT BODY

I. The Problem and the Method of Studying It

Having come to a conclusion with reference to the type of junior college to be fostered, the problem settles down to a question of where such units should be established. This in turn resolves itself into subproblems, two of which are of major concern, (1) that of the source of the student body, and (2) that of adequately financing the work. The latter will be attacked in the chapter immediately following, while the current chapter will give consideration to the former. The particular question upon which it will presume to shed light may be put as follows: How large must the enrolment of a high school and the population of the community which it serves be in order that junior college work may be established with assurance that the requisite student body will be at hand to avail themselves of its opportunities?

The data presented concern the enrolment in the first two years of higher institutions of the graduates of high schools located for the most part in North Central states. At two points, however, materials are introduced pertaining to high schools and communities in other sections of the country. The facts used were ascertained by means of a blank of inquiry directed to the principals of high schools in communities representing a wide range of population—from small villages to cities in which there are no colleges and a smaller number having such higher institutions. The latter were included in order to determine the influence of the presence of higher institutions on the proportions of high school graduates likely to attend them.

The blank form called for the figures on enrolment during the academic years 1920-21 or 1921-22[1] by years (first or second years of higher institutions only), by sex, and by line of work ("regular college work," premedic, pre-legal, the several engineering groups, architecture, dentistry, pharmacy, business, normal, education, agriculture, home economics, music, and other arts; blank spaces were provided for reporting the enrolment in other lines). Other data requested were the number in the high school graduating classes for the two years preceding, and the enrolment of the high school (Grades IX-XII) for the year in which report was made. Principals were asked to include in their reports all their graduates "who

[1] The study here reported is an extension of one published under the title "Where To Establish Junior Colleges" in the *School Review* 29: 414-33. June, 1921. This study concerned enrolments for the school year 1920-21 and pertained to high schools in North Central states. For the purposes of the current chapter the study was extended to include additional schools in this section, as well as in other parts of the United States. All data additional to those utilized in the article referred to are for the school year 1921-22.

are this year enrolled . . . . irrespective of the year of graduation from the high school." For the purposes of the study a higher institution was defined as "one which requires for admission high-school graduation or its essential equivalent in earned units of credit."

As it was anticipated that only a small proportion of high schools would keep records of the sort needed to fill out the blank, a total of almost 1000 inquiries were sent out. Approximately 250 containing data of some sort were returned, 194 proving usable. Of these 111 came from thirteen North Central states, the remaining 83 being from states in all other sections of the country, east, south, and west.

TABLE CCXI

DISTRIBUTION OF GRADUATES OF 194 HIGH SCHOOLS ENROLLED IN FIRST TWO YEARS OF HIGHER INSTITUTIONS

LINE OF WORK	FIRST YEAR			SECOND YEAR			BOTH YEARS		
	Men	Women	Total[a]	Men	Women	Total[a]	Men	Women	Total[a]
Liberal arts ...	1471	1433	2930	1073	1092	2184	2544	2525	5114
Engineering ...	426	2	441	387	5	405	813	7	843
Architecture ...	19	1	20	13	..	13	32	1	33
Dentistry	63	7	70	67	4	71	130	11	141
Pharmacy	30	3	33	29	4	33	59	7	65
Business	206	105	312	141	56	200	347	161	512
Agriculture	118	2	122	116	7	123	234	9	245
Home economics	..	102	102	3	96	99	3	198	201
Normal	93	677	772	54	468	502	147	1145	1297
Nursing	..	18	18	..	20	20	..	38	38
Military and naval	9	..	9	9	..	9	18	..	18
Physical education	2	14	18	..	6	6	2	21	25
Music	16	88	105	2	68	71	18	156	176
Other arts	13	52	66	11	42	53	24	94	119
Miscellaneous .	18	16	35	14	9	23	32	25	58
TOTALS ...	2484	2520	5053	1919	1877	3832	4403	4398	8885

[a] The figures in this column are in some instances in excess of the sums of the figures in the pairs of columns immediately preceding because one school reported totals without dividing by sex.

II. THE DISTRIBUTION OF STUDENTS BY LINES OF WORK, YEAR OF WORK, AND SEX

A total of 8885 of the graduates of all the 194 high schools represented in the study are enrolled in the first two years of work in higher institutions—an average of about 46 per high school. This large number is seen in Table CCXI to be widely distributed as to the lines of work being followed. "Liberal arts" as here tabulated includes those in "regular college

work," as well as pre-medic, pre-legal, and education (not normal school) students. This group is seen to be by far the largest, including 5114, or almost three fifths of the total. The significance of this predominance of students in liberal arts for the problem in hand is in the direction of simplifying the task of providing in the junior college the work suited to the needs of those going on. The five other lines enrolling notably large numbers of students are, in order of predominance, normal, engineering, business or pre-business, agriculture, and home economics. The percentages of the totals in these lines are, respectively, 14.6, 9.5, 5.8, 2.8, and 2.4.

Of all enrolled, 56.9 per cent were enrolled in their first year of work, the remainder in their second year. The division by sex is seen to be almost exactly equal.

III. Enrolment in Higher Institutions As Related to the Size of High Schools, Numbers in the Last Two Graduating Classes, and the Populations of the Cities of Location

As related to the enrolment of high schools.—The relationship to the total enrolment of the high schools (North Central states only) of the registration of their graduates in the first two years of work in higher institutions irrespective of lines of work pursued has been studied in two ways, represented in Tables CCXII and CCXIII. In the former the high schools are grouped by size of enrolment, as 51-150, 151-250, etc. (horizontal classification), and by the numbers of their graduates enrolled in higher institutions (left-hand column). The figures in the second and remaining columns show the number of schools falling under each of the double classifications indicated. The striking feature of this table is the consistent drift of the distribution to larger numbers of students in higher institutions as we proceed from the smaller to the larger high schools. There is a spread of distribution, accentuated to some extent by the high schools in communities in which colleges or universities are located, but the trend is unequivocal. This interpretation is definitely borne out by the average numbers of such students shown in the lowest row of figures, which enlarge consistently from the groups of smaller high schools to the groups of larger ones.

The relationship found is given more definite measurement in Table CCXIII, for which the numbers enrolled in higher institutions have been reduced to percentages of the total enrolment of the high schools. In this table the high schools in communities in which there are no colleges or universities have been separated from those in which there are such institutions, so as to make possible a comparison of the percentages for these two groups. The columns in this table setting forth the distribution for high schools in communities without higher institutions still give evidence of some tendency to divergence in proportions, but the averages at the foot

of the columns and the distribution in the last column but one both demonstrate the consistency pointed out in interpreting Table CCXII. These averages range betwen 10.6 and 12.8 per cent. The distribution in the last column but one shows 59—almost two thirds—of the 91 cases falling between the limits of 7.0-14.9 per cent.

TABLE CCXII

RELATIONSHIP BETWEEN TOTAL ENROLMENT OF HIGH SCHOOLS AND THE NUMBERS OF THEIR GRADUATES ENROLLED IN THE FIRST TWO YEARS OF WORK IN HIGHER INSTITUTIONS (NORTH CENTRAL STATES)

NUMBER OF GRADUATES ENROLLED	NUMBER OF HIGH SCHOOLS CLASSIFIED BY SIZE OF ENROLMENT						
	51-150	151-250	251-350	351-450	451-550	551 and Over	Total
1- 10	4	3	..	..	..	..	7
11- 20	5	8	2	3	..	..	19
21- 30	3	5	6	1	2	..	16
31- 40	..	2	7	4	..	..	13
41- 50	..	3	5	6	2	1	17
51- 60	..	3	2	2	..	1	8
61- 70	..	1	..	3	5	1	10
71- 80	..	..	1	..	1	5	7
81- 90	..	..	1	2	..	4	7
91-100	..	..	..	1	1	..	2
101-110	..	..	..	..	..	1	1
111-120	..	..	..	..	..	..	..
121-130	..	..	..	..	1	2	3
131-140	..	..	..	..	..	..	..
141-150	..	..	..	..	..	..	..
151-160	..	..	..	..	..	1	1
Number of high schools	12	25	24	22	12	16	111
Average number enrolled[a]	13.7	28.4	38.4	47.5	63.7	87.8	45.1

[a] The averages in this and succeeding tables were computed from the original and not from the tabular arrays.

The last column in this table shows the distribution of percentages for high schools in communities in which there are colleges or universities. Twenty such communities are represented in the data assembled, nineteen of them containing colleges and the remaining community containing a state university. Two of these communities also contain state teachers colleges, in one of which junior college work is being offered. The influence of the presence of higher institutions on the percentages enrolled in them is apparent, both in the distribution and in the average of the percentages. The latter is 17.3, whereas the average for the group without local higher institutions is 11.8. This means that, on the average, the

presence of a local higher institution adds more than two fifths and well up toward a half to the proportion of the high school enrolment represented by those of its graduates who attend a higher institution—a fact of large significance where the question of the feasibility of establishing junior college work is being considered.

TABLE CCXIII

PERCENTAGES WHICH THE NUMBERS OF GRADUATES OF HIGH SCHOOLS ENROLLED IN THE FIRST TWO YEARS OF HIGHER INSTITUTIONS ARE OF THE ENROLMENTS OF THESE HIGH SCHOOLS (NORTH CENTRAL STATES)

PERCENTAGE ENROLLED IN FIRST TWO YEARS	NUMBERS OF HIGH SCHOOLS IN COMMUNITIES WITHOUT COLLEGES CLASSIFIED BY SIZE OF ENROLMENT							COMMUNITIES WITH LOCAL HIGHER INSTITUTIONS
	51-150	151-250	251-350	351-450	451-550	551 and Over	Total	
3.0- 6.9	2	5	1	4	2	..	14	..
7.0-10.9	3	8	7	5	2	5	30	3
11.0-14.9	1	4	8	7	5	4	29	6
15.0-18.9	1	1	3	1	1	1	8	2
19.0-22.9	1	2	..	1	1	..	5	3
23.0-26.9	..	2	1	..	1	..	4	5
27.0-30.9	1	..	..	..	..	..	1	1
Number of high schools	9	22	20	18	12	10	91	20
Average of percentages	12.8	11.7	12.2	10.6	12.7	11.4	11.8	17.3

Some corroboration of the validity of this finding is supplied by another approach to the estimate of the proportion of the high school enrolment which those enrolled in the first two years of higher institutions will be if junior college work is established in connection with a high school. This is made possible by utilizing the percentages of students enrolled in each of the four years of large high schools on the accredited lists of the North Central Association as ascertained by Davis.[2] These percentages for the first through fourth years are, respectively, 39.98, 27.69, 18.64, and 13.67. This means that 67.7 per cent were at the time of making the study enrolled in the first two years and the remainder, 32.3 per cent, in the last two years. Assuming that enrolment in an upward extension of two years in these high schools would bear the same relationship to the enrolment in the last two years as the latter do to the enrolment of the first two years, from the proportionate relationship, $67.7 : 32.3 :: 32.3 : X$, we obtain $X = 15.4$ per cent. This is seen to approximate the percentage to be found at the foot of the right-hand column of Table CCXIII. There are grounds

[2] C. O. Davis, Accredited Secondary Schools of the North Central Association. *United States Bureau of Education Bulletin*, 1919, No. 45, p. 34.

for assurance, therefore, that, after the junior college idea is fully accepted, the proportion of the high school enrolment represented by those of its graduates enrolled in the local junior college unit would be not often less than a sixth.

As related to the numbers graduating from the high schools.—Table CCXIV presents a relationship somewhat similar to that just demonstrated, the difference being that, instead of showing the percentages which those graduates enrolled in the first two years of higher institutions are of the high school enrolments, it shows the percentages they are of the numbers in the last two graduating classes of the schools represented. This proportion will approximate the proportion of these two graduating classes enrolled in the first two years of higher institutions, the difference here being that the heads of the schools, as has already been stated, were asked to report on all of their "graduates who are this year enrolled in the first two years in higher institutions, irrespective of the year of graduation from high school." Because of some tendency on the part of graduates of high schools to postpone attendance on higher institutions, it was felt that the number and proportion thus ascertained would be more pertinent to the problem of where to establish junior colleges than would the numbers and percentages that would be obtained on the basis mentioned but not used.

TABLE CCXIV

PERCENTAGES WHICH THE GRADUATES OF HIGH SCHOOLS ENROLLED IN THE FIRST TWO YEARS OF HIGHER INSTITUTIONS ARE OF THE TOTAL NUMBERS IN TWO GRADUATING CLASSES (NORTH CENTRAL STATES)

PERCENTAGES ENROLLED	NUMBERS OF HIGH SCHOOLS IN COMMUNITIES WITHOUT COLLEGES CLASSIFIED BY TOTAL NUMBER IN TWO GRADUATING CLASSES					NUMBER OF HIGH SCHOOLS IN COMMUNITIES WITH COLLEGES
	1-50	51-100	101-150	151 and Over	Total	
10.0-19.9	4	..	3	1	8	..
20.0-29.9	5	7	6	1	19	..
30.0-39.9	2	7	6	4	19	2
40.0-49.9	3	5	14	..	22	3
50.0-59.9	..	4	2	4	10	5
60.0-69.9	2	2	1	..	5	3
70.0-79.9	1	2	2	1	6	4
80.0-89.9	1	1	..	..	2	3
Number of high schools	18	28	34	11	91	20
Average of percentages	37.1	44.4	37.2	43.5	40.1	60.3

The percentage for high schools in communities in which there are no local colleges range from 10.9 to 88.0. The averages for each of the groups of high schools, however, do not manifest a tendency to vary widely, ranging only from 37.1 to 44.4 per cent. The last column but one shows the average of the percentages for these 91 high schools to be 40.1, and the mode to be 40.0-49.9, with rather large numbers of schools above and below the modal group. Sixty cases—about two thirds of all—lie between 20.0 and 49.9 per cent. The presence of local colleges (last column) again shows a marked influence, both on the distribution and on the average of the percentages, which is 60.3. This is 20.2 per cent more for high schools in communities having such higher institutions within their borders. It is an increase of fully a half of the proportion enrolled from communities without local higher institutions—an increase almost identical with that shown for the proportion of the high school enrolment in attendance in the first two years of higher institutions.

As related to the populations of the communities.—A third relationship of significance is that of the numbers and proportions of the total populations of the state represented by those of the high school graduates who are enrolled in the work of the first two years in higher institutions. The figures on population used are those of the 1920 census. An examination of the relationship under consideration is provided in Table CCXV, which presents the distribution when the proportion is expressed as the number in each 1000 of the population of the community represented by those graduates of the high school enrolled in the first two years of higher institutions. There is a very clear mode in the distribution for all communities without local colleges as given in the last column but one. The averages for these columns also show a marked tendency to equivalence, except for the groups of smallest and largest communities represented. For the four groups with population figures lying between 2000 and 15,000 these averages range only from 4.6 to 6.3 per thousand of the population. For the smaller communities the average is somewhat higher. On the other hand, there is some decline in communities of 15,000 and over. This situation is in harmony with that found when proportions of the population enrolled in high schools have been computed, and seems, therefore, attributable to the same causes. One of these is the fact that nonresident enrolment in small high schools is larger proportionately than in large urban high schools.

Again, the distribution of the figures for communities in which there are higher institutions (last column) is toward the larger proportions; the average of the proportions is 10.9 in each 1000 of the population. This is a difference of 5.3 per 1000 in favor of the latter, or an increase of about 95 per cent owing to the presence of the local higher institution. In other words, the average proportion of the population enrolled in the first two years of higher institutions is practically doubled by the presence of a local higher institution.

TABLE CCXV

PROPORTIONS WHICH THE GRADUATES OF HIGH SCHOOLS ENROLLED IN THE FIRST TWO YEARS OF HIGHER INSTITUTIONS ARE OF THE POPULATIONS OF THE CITIES OF LOCATION (NORTH CENTRAL STATES)

NUMBER IN EACH 1000 OF THE POPULATION	NUMBERS OF CITIES WITHOUT COLLEGES CLASSIFIED BY SIZE OF POPULATION IN 1920								CITIES WITH LOCAL COLLEGES
	0-1,999	2,000-3,999	4,000-5,999	6,000-7,999	8,000-9,999	10,000-14,999	15,000 and Over	Total	
0.1- 3.0	..	2	4	3	1	2	8	20	..
3.1- 6.0	2	4	6	8	6	6	4	36	7
6.1- 9.0	1	7	3	7	2	1	..	21	4
9.1-12.0	..	..	5	1	1	1	..	8	2
12.1-15.0	1	..	1	1	..	..	..	3	2
15.1-18.0	..	..	..	..	..	..	..	..	2
18.1-21.0	1	..	..	..	..	..	..	1	1
21.1-24.0	..	..	..	..	..	..	..	..	..
24.1-27.0	..	..	..	..	..	..	..	..	1
27.1-30.0	..	..	..	..	..	..	..	..	..
30.1-33.0	..	..	..	..	..	..	..	..	..
33.1-36.0	..	..	..	..	..	..	..	..	1
Number of communities	5	13	19	20	10	10	12	89	20
Average of the numbers in each 1000 of the population	10.1	5.7	6.3	5.8	5.5	4.6	2.7	5.6	10.9

Other sections of the country compared.—A computation of the average of the percentages which those graduates of 47 high schools in New England and the Middle states are of high school enrolments in communities without local higher institutions shows it to be 11.5. As the percentage for North Central states has been shown to be 11.8, we may assume that there is little or no difference in tendency in the public high schools of the two sections in this regard. The percentage for a smaller number of high schools in southern states gives a somewhat larger percentage, 13.2, while for the West it is somewhat smaller, being 10.7.

Computation of the proportion of the population represented by these same students results in greater differences among the different sections. For North Central states, when cities of 4000 and over only are considered, this proportion turns out to be 5.2 per 1000 of the population. For New England and Middle states it is 3.9, or only three fourths as great. For southern states it is 3.3, i.e., less than for the eastern group, while for the western group it is even somewhat higher than for the Middle West, being 5.6.

Although the numbers of high schools represented in some of these sections, notably in the South and West, are far from large enough to warrant decision upon the degree of feasibility in each, the following statement is justified: as far as this feasibility is determined by the size of high school enrolments, equal enrolments in the different sections would be likely to predict feasibility in equal degrees, but as determined by the populations of the communities, junior college enrolments of a given size would be available in smaller cities in the Middle West and West than in the East, but more especially than in the South. This conclusion has the support also of the average numbers of students in high school to each 1000 in the population in these sections, as may be ascertained by reference to the report of the United States Bureau of Education on the statistics of public high schools for 1917-18.[3] The location of the medians for the states in each of the four sections as we have divided the country results in 20.2 per 1000 of the population for mid-western and for western states, 16.5 for the New England and Middle states, and 8.1 for southern states.

The facts cited also encourage the conclusion that the size of high school enrolment is a much better criterion of feasibility than is the population of the community of location of the high school.

IV. Where To Establish Junior Colleges

The minimum unit.—At other points in this report data are presented which provide a basis for arriving at a minimum approvable junior college student body. One determinative relationship is that of cost per student as canvassed in the chapter immediately following. Data there presented indicate that this cost is likely to run unreasonably high where units do not enroll as many as 150 to 200 students. Another important consideration is the restrictions that must be placed upon the curricular offering in units enrolling less than this number of students. The desirable minimal offerings have been given attention in Chapters III and IV and are so extended as to discourage the establishment of units enrolling less than the upper number of students referred to. The discouragement is in part that of high costs and in part that of classes too small to provide the emulation necessary to effective scholarship. Again, it was shown in Chapter XII that without enrolments of good size it will be out of question to provide in the junior colleges instructors with adequate specialization in certain essential fields. Another consideration in support of sizable units is the restrictions upon the socializing value of attendance where total enrolments are too small to provide a wide variety of student contacts. The tentative minimum accepted for consideration in this and the subsequent chapter is 200 students. It is not assumed that experience may not in time lead to the approval of a

[3] *United States Bureau of Education Bulletin*, 1920, No. 19, p. 49.

smaller number, nor that inaccessibility of opportunities for higher education may not recommend occasional units that are marked exceptions, just as it sometimes justifies the establishment of very small high school units. Present indications are, however, that enrolments should extend from 200 students upward and, therefore, this number will be used in canvassing the feasibility in the matter of the source of student body.[4]

The size of high school enrolment and population assuring feasibility.— Assuming a minimum unit of 200 students and a proportion enrolling in any local junior college equal to a sixth of the high school registration, i.e., the approximate equivalent of the percentage shown at the foot of the right-hand column of Table CCXIII, it becomes apparent that, if all students were drawn from the graduates of any local high school, the enrolment in the latter would need to be in the neighborhood of 1200 students. Bonner shows[5] that in 1917-18 only 278 of almost 14,000 high schools in the United States reporting enrolled over 1000 students. Since we are giving particular attention to North Central states, it should be stated that of this number slightly less than a hundred—98, to be exact—were in this region, less than a hundred in a total of 6618 reporting. Recent tendencies to increase in high school attendance have without doubt brought this number well up above the century mark, but their relative infrequency in a territory as large as that represented, extending from Ohio to Nebraska and Kansas and from Minnesota and North Dakota to Missouri and Oklahoma, makes it clear that, if junior colleges were established only in connection with high schools with enrolments of a thousand or more, this region would not be well served by them.

The proportion of the population enrolled in the first two college years is seen in Table CCXV not to be as constant as is the percentage which those so enrolled are of the high school enrolment. Whatever may be the causes, there is a consistent decline in the proportions by size of cities in proceeding from those of smaller to those of larger populations. On this account and because the table does not include data touching very large populations, it is impossible to predict with much of certainty where a minimum student body of 200 will be at hand as in the foregoing instance. There is, however, a sufficient basis of assurance in the materials to warrant the attempt. It has already been indicated that the proportion of the population attending is practically doubled by the presence of a local higher institution. Accepting the proportion in cities of 15,000 and over without higher institutions at 2.7 per 1000, this means that the proportion would rise to

[4] This minimum is four times as large as that regarded as standard by the North Central Association of Colleges and Secondary Schools, a number accepted tentatively by the writer as a minimum in a study of which the one here reported is an extension and published in the *School Review* 29: 414-33, June, 1921. Such a minimum number may be satisfactory from the standpoint of the Association, but is altogether too small when giving consideration to the size proper in a state system of junior colleges.

[5] *United States Bureau of Education Bulletin*, 1920, No. 19, pp. 19 ff.

something like five or six per 1000 in cities of this size with local colleges. A population of 35,000-40,000 would, therefore, be required if the total enrolment of 200 junior college students were to be drawn from within the city of location only. Because of the inconstancy of the proportion as shown the feasible minimum population might in some instances drop to 25,000 or 30,000, while in others it would rise above 40,000.

The census figures for 1920 show for North Central states a total of 98 cities with populations of 25,000 and over. Checking over the list of cities finds approximately a half of them already provided with one or more higher institutions of one sort or another. Although this fact would not often remove the desirability of establishing junior college work in such cities, it would, owing to the draft of the institution already in existence upon the potential junior college student body, tend to discount the feasibility of the establishment of junior college work.

TABLE CCXVI

PERCENTAGES OF THE POPULATIONS OF CITIES ENROLLED IN HIGH SCHOOLS (NORTH CENTRAL STATES)

PERCENTAGES OF POPULATION ENROLLED IN HIGH SCHOOL	NUMBER OF CITIES CLASSIFIED BY SIZE OF POPULATION IN 1920							
	0-1,999	2,000-3,999	4,000-5,999	6,000-7,999	8,000-9,999	10,000-14,999	15,000 and Over	Total
1.0- 1.9	..	1	..	..	1	..	2	4
2.0- 2.9	..	..	..	2	1	..	6	9
3.0- 3.9	..	1	3	4	5	6	6	25
4.0- 4.9	1	..	6	8	5	4	3	27
5.0- 5.9	..	2	5	7	3	..	..	17
6.0- 6.9	1	6	6	1	..	1	..	15
7.0- 7.9	1	2	1	..	..	..	..	4
8.0- 8.9	1	2	1	..	..	..	..	4
9.0- 9.9	..	1	..	..	..	..	..	1
10.0-10.9	2	..	..	..	..	..	..	2
11.0	1	..	..	..	..	..	..	1
Number of cities	7	15	22	22	15	11	17	109
Average of the percentages	8.5	6.3	5.4	4.4	4.0	4.0	3.0	4.8

A study of the central tendencies in Table CCXVI which gives the percentages of the populations of cities represented by those enrolled in high schools, will supply some support for the conclusion that cities with a population of 35,000 to 40,000 are likely to have high school enrolments approximating 1100 or 1200. This indicates a likelihood that communities meeting the requirements of population as just set will be identical with those having high schools with the requisite enrolment, and vice versa.

It may be gratuitous to emphasize the fact that the rough prediction here made is based for the most part on central tendencies and that in many particular situations deviation from it is to be anticipated. The variation evident in the figures in the tables must lead to the admission, for instance, that there will be some high schools with enrolments of 1100 or 1200, or communities with populations of 35,000-40,000 from which it will not be possible to recruit the desirable minimum of 200 students for junior college work. On the other hand, this same variation makes clear that there will be high schools with much smaller enrolments and communities of smaller populations where this minimum may be secured.

Junior colleges in smaller high schools and communities.—It is clear that insistence that junior colleges of practicable size draw their students exclusively or almost exclusively from the cities of location would be certain to a large extent to place the movement beyond the pale of serious consideration. However, as most colleges and universities, whether on public or private foundations, draw large proportions of their students from without their communities of location, we have a precedent of long standing to justify us in planning a system of public junior colleges that will make up their minimum student body of 200 in considerable part from beyond the immediate environs. The writer has presented elsewhere[6] data showing the percentages of students enrolled in the first two years of certain mid-western colleges who reported as their residences the communities in which the institutions are located. An examination of these percentages for the 14 colleges located in cities with populations ranging from 10,139 to 71,227 shows them to lie between the limits of 5.1 and 57.7. The median percentage for this group is 37.3. This means that the median percentage of students from *outside* the city of location is 62.7, something short of two thirds. There is no reason to believe that an efficient state system of junior colleges properly located would be unable to draw an equally large proportion from outside. But there are vital reasons why such a state system should aim at so placing these units that a majority at least of the students can live at home while in attendance. Among these are the advantages of lowered cost which has been shown to be a powerful factor in democratization of higher education (see Chapter VII), and which should be kept in mind in planning a system of junior colleges. Another is the younger age at which students under such circumstances will enter upon the work of these school years (see Chapter IX).

If as large a proportion as an approximate half of the minimum desirable junior college student body could be drawn from other high schools and from beyond the limits of the community of location it would lower markedly the point of feasibility of establishing junior colleges. It would cut

[6] The Residential Distribution of College Students and Its Meaning for the Junior-College Problem. *School and Society* 13: 557-62. May 7, 1921.

in half the necessary high school enrolment of 1200, reducing it to something like 600. In the light of the average proportions shown at the foot of Table CCXV and the doubling of the proportion effected by the presence of a local higher institution, we can expect that in cities with populations of 10,000-14,999, the number in each 1000 of the population enrolled in junior college years would be approximately 9. This in turn means that a majority of the minimum desirable student body would be likely to be at hand in cities of 12,000 population, or thereabouts. Re-examination of Table CCXVI will show that these two figures of a high school enrolment of 600 and a population of 12,000 do not quite coincide, as four per cent, the average of the percentages of the population in cities of 10,000-14,999 enrolled in high schools would give approximately 500. The discrepancy is not sufficient to affect vitally the predictive value of the data, although it urges the more careful scrutiny of each community in which it is contemplated to introduce junior college work. It should be repeated that, on account of the greater consistency of the percentages which those enrolled in junior college years are of high school enrolment as seen in Table CCXIII, when compared with the proportion of the population in these years, that the former measure is possessed of greater predictive value than the latter.

Lowering the point of feasibility by assuming a majority only of students from the local high school and the local community increases, of course, the numbers of the latter in which introduction of junior college work could be justified. Referring again to Bonner[7] we find that including with the 98 high schools in North Central states having enrolments of more than 1000 those with enrolments ranging from 551 to 1000 increases the total number to 214, i.e., more than doubles it. Likewise, adding to the number of cities with populations of 25,000 and over in the same states those between 10,000 and 25,000, brings the total up to 256, whereas the group of larger cities included only 98. While only a careful study of the distribution of the high schools and cities represented could indicate how well the region would be served by junior colleges established in them, the total numbers are sufficiently large to warrant the belief that enough such high schools and cities are available to assure adequate systems of junior college units.

The statement should be made that in establishing an adequate state system of junior colleges it may be necessary in some instances to violate one or another of the principles of guidance that have been set up from time to time in this and the foregoing chapters. For example, as sometimes in the matter of the provision of opportunities for high school education in groups smaller than normally justifiable, for instance in localities remote from population of good size, it may be desirable to approve junior college units of

[7] *Loc. cit.*

less than the minimum desirable student body. It may, in still other instances, in instituting state systems of junior colleges, be found desirable to establish units in connection with high schools which cannot provide the majority of a minimum of 200 students. These cases should, nevertheless, be looked upon as distinctly exceptional—not the rule.

It should be of interest to note in passing that two states—Michigan and California—have had legislation attempting to regulate the location of junior colleges in such a way as to have some bearing on the problem of the source of student body. The former authorizes any school district having a population of more than 30,000 to provide two years of collegiate work.[8] The latter insists that high school enrolments in districts maintaining junior colleges be not less than 400.[9] Whether the former restriction was placed with intent to assure an adequate student body, adequate support, or both, is not clear.

V. Obstacles To Be Overcome

Junior colleges not now attracting all local high school graduates who go on.—An assumption underlying the foregoing predictions is that all graduates of high schools who go on to higher levels of training would attend a local junior college during the first two years. It should be frankly admitted that such an assumption does not accord with the facts in the present state of development of junior colleges. The situation in this regard is illustrated in Table CCXVII which presents for thirteen public junior colleges for which data were available the facts concerning the numbers of high school graduates during 1921, the numbers of these who subsequently registered in the junior colleges, the numbers who went on to other colleges and universities instead of attending the local junior college, and the percentages those who attended the local junior college are of the total number who thus continued their education in junior colleges, colleges, and universities. Among these have been included students in attendance at higher technical institutions, but not other *separate* institutions for special training like normal schools, library schools, etc.

The order of junior colleges in the table is seen to be that of the proportions of graduates attending the local junior colleges, from least to greatest. These percentages are seen to range from 37.8 to 95.8—from three eighths to almost all who go on. The lower percentages indicate that in some junior colleges the proportion falls far below the assumption referred to. At the other extreme, however, there are junior colleges which attract almost all who continue their education in this way. The average percentage for all

[8] *General School Laws,* State of Michigan, Revision of 1921, section 1 of Act 146, P. A. 1917. Lansing: State Printers. 1921.

[9] *Statutes of California,* General Laws, etc. Passed at the regular session of the 44th Legislature, 1921: section 2 of Chapter 495, p. 756. Sacramento: State Printing Office. 1921.

13 units is 70.6. It is manifest that if the prediction as made is to be realized, junior colleges must all come to hold as large a proportion at least as Junior College M in the table.

TABLE CCXVII

NUMBERS OF GRADUATES OF HIGH SCHOOLS IN CONNECTION WITH WHICH JUNIOR COLLEGES ARE MAINTAINED, NUMBERS OF THESE ATTENDING LOCAL JUNIOR COLLEGES, NUMBERS ATTENDING OTHER COLLEGES AND UNIVERSITIES, AND PERCENTAGES THOSE ATTENDING LOCAL JUNIOR COLLEGES ARE OF ALL ENROLLED IN COLLEGE AND UNIVERSITY WORK

PUBLIC JUNIOR COLLEGE	I Number of High School Graduates, 1921	II Number of Graduates Attending Junior College, 1921	III Number of Graduates in Other Colleges and Universities, 1921	IV Per Cent II Is of Sum of II and III
A	78	17	28	37.8
B	46	13	13	50.0
C	137	17	17	50.0
D	85	14	11	56.0
E	107	28	20	58.3
F	154	56	26	68.3
G	144	42	19	68.9
H	189	44	18	71.0
I	77	39	14	73.6
J	130	70	14	83.3
K	90	29	5	85.3
L	70	25	4	86.2
M	140	68	3	95.8
TOTALS ...	1447	462	192	70.6

Proportions remaining in the second year.—The public junior colleges at the present time fall short of the assumption in one additional respect, the proportion of first year students held into the second year. This fact is made clear in Table CCXVIII which compares these percentages of retention with those in standard four-year colleges of the Middle West. The public junior colleges and four-year colleges represented are, respectively, 5 and 13 in number. Data concerning the latter have been drawn from Tables CVII and CIX in Chapter XXIII dealing with retention in colleges and universities. The number of students in the junior college group is relatively small, but the writer believes it to be sufficient to illustrate the problem of elimination from junior colleges.

TABLE CCXVIII

NUMBERS AND PERCENTAGES OF STUDENTS REGISTERING IN FIRST YEAR OF JUNIOR COLLEGES AND MID-WESTERN COLLEGES WHO CONTINUE INTO SECOND YEAR OF (A) SAME INSTITUTIONS AND (B) ANY HIGHER INSTITUTIONS

TYPE OF INSTITUTION	SEX	FIRST YEAR ENROLMENT	SECOND YEAR IN SAME INSTITUTION		SECOND YEAR CORRECTED FOR TRANSFERS	
			Number	Per Cent	Number	Per Cent
Public junior colleges (5)	Men	65	29	44.6	46	70.8
	Women ..	106	53	50.0	68	64.1
	Totals .	171	82	48.0	114	66.5
Mid-western colleges (13)	Men	679	428	63.0	..	..
	Women ..	622	442	71.0	..	..
	Totals .	1301	870	66.9	..	73.2

The proportion of students remaining into the second year in junior colleges is seen to drop to a half of the total or slightly less, women being retained somewhat better than men. In the four-year colleges the percentage of retention is nearer two thirds. The difference in favor of women is even slightly larger in this group of institutions. The last column in the table gives the percentages of retention corrected for transfers, that is, the percentages of these students still in higher institutions when account has been taken of those who transfer to other colleges, universities, etc. This additional measure shows, first, that, although junior colleges retain less well than do colleges, their students remain in almost as large proportions in all higher institutions as do those who first enroll in standard colleges. This is merely re-emphasizing the greater elimination before the second year in junior colleges. The second fact of importance is, that, despite the apparently poorer retention of men *in junior colleges,* they remain in larger proportions than women when the measure of retention includes transfers to other institutions. This stresses again the less satisfactory retention in junior colleges.

A fact of importance which the condensation of Table CCXVIII cannot disclose is the variation from school to school with respect to the proportions of students carried into the second year. One of the five institutions represented held only 35.3 per cent—slightly more than a third—into the second year of the group of students under consideration; while another held 57.4 per cent—almost three fifths.

Factors of this untoward situation.—Both types of facts just presented, those showing that the new unit draws less than the total number of those

who go on to higher levels of training and those indicating the relatively small proportion of students remaining for the second junior college year, are evidence that the movement is not yet thoroughly established. It takes time and effort to win the acceptance of a new institution or to place it on a foundation that will justify its holding all students going on through two years of residence. Setting aside for the moment the question of whether all necessary work is now going forward in these new units, it must be admitted that it will require some years before they can become a part of the educational tradition of all the possible constituency. This is the experience, of course, of every novelty, and must be especially characteristic where the older traditions of "college life" are prevalent in a community. It will be difficult for some to associate in their minds even a part of what they regard as the period of collegiate training with the secondary unit below. These will be prone to look upon the movement disparagingly because it *is* an upward extension of the high school. In such a situation there will be those among both parents and potential junior college students who will either not look with favor upon attendance to any extent, or will countenance at most a single year of further stay in such an institution. A second factor must be the meager curricular offerings in some of the junior college units. With little in the way of option and a much more restricted range of courses available in the second year than in the first, the former factor of a lack of understanding or appreciation of the movement has something in its support.

These factors are, however, not permanently inherent in the situation. It has been indicated above that some junior colleges have already been able to remove these obstacles almost entirely. There is no occasion to fear that, given sizable junior college units on state foundations and with generous curricular offerings meeting the requirements of a wide variety in the student body, these obstacles should not be entirely removed and predictions of the sort made at an earlier point in the chapter become completely realizable. To attract such numbers and proportions as have been predicted it will not be necessary to provide in the junior college all the lines of specialization listed in Table CCXI, as students will gravitate to some extent toward the curricular materials available. At the same time such an offering could not be restricted to the first two years of work in colleges of liberal arts. Some opportunities of differentiation must be provided, such as engineering, business, home economics, etc. There is, again, no occasion to doubt that, under such circumstances these junior college units should not attract practically all students ready for work on this level, just as the public high school in most of our communities has come to draw to it all or almost all students who enroll in work on the traditional secondary school level.

The point of feasibility likely to lower.—There is much more likely to be a lowering of the point of feasibility as measured by the size of high school enrolment and of population than there is to be anything more than a temporary obstacle to the realization of the predictions as made. As all those conversant with the situation in secondary and higher education are aware, high school and college attendance has been gaining rapidly on the population during several decades. If junior colleges come at all commonly to find a place in our school system, even more rapidly increasing numbers and proportions will avail themselves of the opportunities afforded. This will be due in part to the rising tide of popular education itself, in part to mere availability, as already indicated, to the public character of the institution, and to the tendency that must come to merge these two units of the school system. This increase will be accompanied by an enrichment of curricula in these years, and this in turn will also accelerate the increase.

CHAPTER XXXIX

THE FINANCIAL PROBLEM

I. Why and How Studied

The problem of finance important.—As admitted at the opening of the foregoing chapter, the problem of establishing a system of junior colleges is not one merely of securing a sizable student body, but one also of adequately financing the work. To some it may seem the more important aspect of the problem, and there are excellent grounds for such a conviction.

How canvassed.—Although there can be no endeavor here to make a complete study of all financial aspects of junior college establishment and maintenance, in view of the extent of justification of the movement found in earlier portions of the report, this investigation could not be regarded as complete without giving some attention to the fiscal aspects of providing the work. This chapter will, therefore, present materials bearing on the teaching cost in junior colleges; the total cost per student; the burden that would need to be carried by a local community providing the work, if the cost is borne entirely by such community; the relationship of this burden to that already being carried by communities of different populations to support education on lower levels; and inferences from these financial data toward an appropriate procedure in fostering the movement.

The problem of cost to the student or other person bearing the burden of expense for his attendance will not be considered here, as it has been scrutinized in Chapter VII.

II. The Teaching Cost

How computed.—It was possible to secure from as many as fifteen public junior colleges visited by the writer sufficient data to compute the annual cost of teaching per student enrolled. The figures on average cost obtained and presented in Table CCXIX, while not to be regarded as fully accurate, are sufficiently so to warrant confidence in them as being at least approximate.

The method of computation of the average cost was simple. It consisted merely, as may be seen in the table, in obtaining the total cost of junior college teaching and dividing it by the number of students enrolled.[1] The only difficulty here arose in connection with ascertaining the total teaching cost for units in which teachers were giving instruction on both high school and junior college levels. The practice followed in distributing a teacher's

[1] The standard practice in such computations is to divide by the number of students in average daily attendance. If this had been followed here, the number of junior colleges represented would have been reduced because of the difficulty of securing data on average daily attendance in some units.

salary to the two units was that of ascertaining the typical teaching load of full-time high school teachers in the institution represented and charging to the junior college unit the fraction of a total high school load not devoted to the high school. Thus, if the usual high school teacher's schedule was 25 hours per week, i.e., 5 classes per day, and some full-time instructor was teaching 10 hours in high school and 10 in junior college, i.e., 2 hours per day in either unit, three fifths of the annual salary was charged to the junior college, it being assumed that the 10 junior college hours were in this institution regarded as the equivalent of 15 high school hours. This procedure in computation does not bring results in costs similar to such as are announced by those in charge of some of the schools represented, since some school authorities would assume in their computations that the instructor referred to in this illustration was teaching half a load in either unit, at the same time that they would admit that the full high school teaching load is 25 hours.

TABLE CCXIX

THE ENROLMENT, TOTAL TEACHING COST, AND AVERAGE TEACHING COST PER STUDENT IN FIFTEEN PUBLIC JUNIOR COLLEGES IN 1921-22

PUBLIC JUNIOR COLLEGE	ENROLMENT	TOTAL TEACHING COST	AVERAGE COST PER STUDENT
A	112	$ 9,326	$ 83.26
B	58	6,001	103.47
C	162	17,272	106.61
D	52	5,606	107.81
E	156	16,896	108.31
F	149	17,030	114.30
G	74	8,598	116.19
H	657	77,190	117.48
I	59	8,669	146.93
J	61	10,294	168.75
K	27	4,580	169.63
L	61	10,390	170.33
M	151	31,280	207.15
N	90	19,520	216.89
O	39	8,718	223.54
MEDIAN CASE	74	$10,294	$117.48

Average annual teaching cost.—The junior colleges represented are listed in the order of the average cost from least to greatest as given in the last column of Table CCXIX. This average cost is seen to range as widely as $83.26 to $223.54, the highest being almost 2.7 times as great as the lowest. The first glance down the column of figures on enrolment in comparison with that giving average teaching costs may give an impression that the two

bear no relationship to each other and that increasing enrolments are as likely to bring increased as decreased average teaching costs. More careful examination nevertheless shows some tendency for the larger enrolments to be in the upper portions of the column and the smaller in the lower portions, that is, to show larger average costs for smaller enrolments. By way of illustration it may be said that the 8 lowest average costs are those of institutions 5 of which had enrolments in excess of 100, whereas the 7 highest average costs included are those of institutions only a single one of which had an enrolment of that magnitude.

This tendency for lowered costs with increased enrolments is shown in the following arrangement of average costs in which the junior colleges have been grouped by size:

Large (over 200 students)	
Junior College H	$117.48
Medium (100-200 students)	
Junior College A	83.26
Junior College C	106.61
Junior College E	*108.31*
Junior College F	114.30
Junior College M	207.15
Small (less than 100 students)	
Junior College B	103.47
Junior College D	107.81
Junior College G	116.19
Junior College I	146.93
Junior College J	*168.75*
Junior College K	169.63
Junior College L	170.33
Junior College N	216.89
Junior College O	223.54

In this arrangement the numbers in each of the three groups are seen to be 1, 5, and 9. In the groups of medium and small junior colleges the arrangement is again from least to greatest average cost, the middle case being indicated in italics. The median cost in the group of smallest units is more than 1.5 times that in the group of units of medium size.

The wide variations within each group may be ascribed primarily to the influence of size of salary paid to junior college teachers. This may be illustrated for Junior Colleges A and N, which had enrolments, respectively, of 112 and 90, i.e., approximately equal. The difference in average teaching costs in these two units is that between $83.26 and $216.89, and it is a difference determined for the most part by a large difference in salaries paid, although it is also to some extent attributable to the more extended offering and, consequently, smaller classes in the latter. The same factors account for the difference between average teaching costs in Junior Colleges E and M, which have almost equivalent enrolments.

The cost per student hour.—The problem of teaching costs was studied also by computing the costs per student hour for the public junior colleges represented in these data, and also for the junior college years of four-year colleges and universities represented in Chapter XII. The method of computing this unit cost for any class or section may be made clear by illustration. A given instructor receiving $2400 per year may have been scheduled for 15 hours of teaching per week. Five hours of this, let us say, is given to a class in beginning French. This means that a third of his instructional schedule is devoted to this task, and this in turn signifies that a third of his annual salary, or $800, is chargeable to this portion of his teaching load. To each student enrolled in the class he gives, during a 36-week school year, 36x5, or 180 hours of instruction. If there are 30 in the class or section in question, this means a total of 180x30, or 5400 student hours of instruction. Since the total teaching cost of the 5400 hours is $800, the cost per student hour is 14.8 cents. The next step after this computation was a tabulation in which the student hour cost for each class taught (not for each student hour represented) was introduced, and for the distributions resulting the medians and quartiles to be found in Table CCXX were computed. Let it be stated before directing attention to the significance of the figures that only non-laboratory academic subjects are represented in the table. Costs in other lines have been similarly studied, but those in Table CCXX may be understood to illustrate sufficiently the significance of the findings.

TABLE CCXX

MEDIAN AND QUARTILE COSTS (IN CENTS) PER STUDENT HOUR OF TEACHING IN NON-LABORATORY ACADEMIC SUBJECTS IN SMALL, MEDIUM, AND LARGE PUBLIC JUNIOR COLLEGES, AND IN JUNIOR COLLEGE YEARS OF FOUR-YEAR COLLEGES AND UNIVERSITIES

MEASURES OF TENDENCY	SMALL JUNIOR COLLEGES	MEDIUM JUNIOR COLLEGES	LARGE JUNIOR COLLEGES	FOUR-YEAR COLLEGES	UNIVERSITIES
First quartile .	22.9	17.3	14.9	11.8	16.5
Median	34.7	32.5	19.1	17.6	22.3
Third quartile .	59.8	68.2	25.3	28.4	28.2

The wide difference between smaller junior colleges on the one hand and larger junior colleges, four-year colleges, and universities on the other is at once apparent. Unit costs computed in this way cannot be as meaningful for the purposes of the present chapter as the average annual costs just presented, but they constitute an additional argument against the establishment and maintenance of units destined to remain small. Assuming that the typical student carries 15 hours of work, entailing a total of 540 student hours during the school year, the annual teaching costs per student com-

puted in this way in the 5 types of institutions represented in Table CCXX are, respectively, $187.28, $175.50, $103.14, $95.04, and $120.42. Of course, these annual costs would require correction for the higher cost in that portion of the student's work taken in laboratory courses in science, which run somewhat higher in student hour costs and for the required work in physical education taken in addition to this work in the study subjects. There is, also, a peculiar ineptitude to representativeness of the median figure for the junior colleges of medium size as given in the second column, if we may judge from the annual teaching costs in this group of units as already shown. The least that can be said, however, is that these data on student hour costs corroborate a warning sounded by the annual teaching costs against encouraging the establishment of units destined to remain small.

After making a number of experimental computations assuming enrolments of varying sizes and salary schedules comparing favorably by being just as high or somewhat higher than those paid for the same work in four-year colleges, thereby making it possible to compete with such institutions for teachers, the writer has concluded that satisfactory instruction can be provided at from $115 to $135 per student enrolled per year, and that a tentative middle figure, variable to a considerable extent above and below, is $125. To make such a figure possible, however, it is necessary to keep the minimum enrolment at something like 200 students, of which approximately three fourths should be enrolled in liberal arts work exclusively. As the enrolment drops below this minimum the average annual cost of teaching must rise, making the comparison of costs with those for the same work in other standard higher institutions less favorable to the new unit. By keeping the offering meager, large classes would be encouraged, and the average cost be kept low, but such a practice would itself militate against the maximum possible enrolment. The assumption in the matter of breadth of work offered is a practice no less generous than that suggested near the close of Chapters III and IV and at other points in this report. The experimental computations made indicate that it would require approximately 150 liberal arts students to warrant making the minimum liberal arts offering suggested in Chapter III.

An estimate of the average student hour cost under the conditions of the tentative middle annual cost of teaching of $125 with the minimum enrolment of 200 is readily obtainable. A typical student schedule of 15 hours per week would mean attendance upon 540 student hours of class work per year and for 200 students this is a total of 108,000 student hours. The average cost of $125 per student per year for 200 students involves a total outlay for teaching of $25,000. The average student hour teaching cost in such a situation will be the quotient resulting from dividing the latter total by the former, and this is 23.1 cents, and this in turn is a cost

5.5 cents higher than the median for the four-year college in Table CCXX. Should the average annual teaching cost mount to the upper limit of $135, a similar computation brings a figure of 25 cents, probably as high a student hour cost as could be justified as a typical one.

Such *average* student hour costs, let it be understood, imply costs in some subjects, courses, and classes much higher and others much lower, owing to the size of class in the subject or course, as well as certain other factors. In some, as in English composition, where one course is usually a prescription, classes will be large and student hour costs low, while in others, particularly the more advanced courses, classes will be small and costs high.

The writer has admitted elsewhere in this report that certain special considerations, such as, e.g., the relative inaccessibility of opportunities for education on this level, will sometimes justify providing junior college work in smaller numbers than the typical minimum suggested, much as we sometimes defend a similar provision of opportunities of education on the high school level to smaller numbers in remote territory. Such provisions should be made, however, with a full understanding of what they mean in additional costs per student. In the long run we cannot defend an average annual teaching cost very much larger than that for which the same education can be given in the larger educational units now in existence, although in view of the lowered cost to the student who can attend near home some increase in annual cost will at times be defensible.

It will be well to bear in mind at this point that there are other reasons for maintaining sizable junior college units, among them the necessity of providing class sections large enough to supply something in the way of emulation within each class group for the sake of achieving an effective scholarship; the need of affording sufficient opportunities for teacher specialization in a rather wide range of subject representation which is possible only in a student body of good proportions; and the necessity for enhanced opportunities for training in leadership (see Chapter XI).

III. The Cost of Items Other Than Teaching

Difficulties encountered in these computations.—To ascertain teaching costs in junior colleges is a simple matter when compared with obtaining other costs of providing education on the junior college level. In few if any systems in which junior college work is maintained are there anything like satisfactory methods of school accounting which attempt in any comprehensive way to separate the junior college costs along non-teaching lines from those for other parts of the system. Even where attempted the practices vary so as to prevent comparison from unit to unit.

Although this situation is discouraging as concerns the complete analysis of the financial problems of instituting and maintaining the work concerned,

access was had to sufficient pertinent data to justify a fairly dependable estimate of non-teaching costs per student in units of the size approved as a desirable minimum in the foregoing sections of this chapter. The method of presentation to be used will be that of illustrating the computation for a single junior college, Junior College F of Table CCXIX, one of the units in southern California with an enrolment approximately a fourth smaller than that approved as a desirable minimum, one which is a part of the school system in a city with a population and high school enrolment not far from adequate when measured by standards applied in the foregoing chapter. Although the results of the computations are not to be regarded as accurate, they are sufficiently so to warrant their use in connection with the problem here under consideration. The items of cost to be considered are *other instructional, general control, operation, maintenance, fixed charges, auxiliary agencies,* and *building replacement.* In so far as necessary, before acceptance as appropriate typical costs the unit costs found for this junior college will be modified in the light of similar unit costs obtained for other units for which comparative data were at hand.

Other instructional cost.—The annual teaching cost for this junior college has been computed at $114.30. This does not include the cost per student for other items so closely related to teaching work that, in recent efforts at computing unit costs, they are, together with teaching cost, included as the total cost of instructional service. In our analysis for this junior college these items are put at the following figures:

1. Special salary additions for the service of the dean	$ 600.00
2. Apportionment of salary of registrar	224.07
3. Printing	175.55
4. Apportionment of expenditures for library	1875.56
5. Apportionment of general ($106.70) and special ($160.05) consumable instructional supplies	266.75
TOTAL	$3141.93

Divided by the number enrolled, 149, this means an annual expenditure per student for these items of $21.09. For reasons to be given, this average cost may be a dollar or two in excess of the correct figure.

Item 1 requires no explanation other than that given in the list. Item 2 is the portion of the registrar's salary chargeable to the junior college unit. This registering and recording officer received $2100 per year for serving in this capacity for both high school and junior college. As the enrolment in the lower unit was 1248, and that in both units combined 1397, the amount to be assigned to the junior college was determined by taking that portion of $2100 represented by the percentage 149 is of 1397, or 10.67. This percentage is $224.07. Item 3 includes $120 spent for 500 copies of the junior college catalogue, $15 for a special circular to parents and to graduates of the high school, and 10.67 per cent of a budget item of $380 for

printing for the combined unit. The total expenditure during the year for the library used in common by high school and junior college was $3751.11, of which $2440 was for salaries and $1311.11 for new books ($1202) and repairs on old ones ($109.11). The principal estimated that, as viewed by the extent of use of the library, an amount approaching but perhaps somewhat less than a half of this total was chargeable to the junior college. Item 4 covers a full half of the total cost as just given, although this estimate is probably high, first, because of the high estimate of proportionate use and, second, because some of the outlay for new books was for the purchase of materials in the nature of permanent equipment. The accuracy of Item 5 is more problematic than that of any other in the group because the budget items and expenditures did not seem to distinguish between permanent equipment (e.g., for the sciences) and consumable instructional supplies. The figure listed resulted from computing 10.67 per cent of the sum of the amounts spent for general instructional supplies and of those estimated to have been spent for consumable supplies in special subjects in which junior college students were enrolled, e.g., chemistry, gymnasium, etc.

General control.—This term is understood to be synonymous with overhead expenses. "It includes such items as the superintendent's salary and the expenses of his office, the cost of school elections, ... maintenance of the offices of the Board of Education and other expenses for research or business control."[2] The best estimate that could be made on this classification for the system represented was $10,070. As the total enrolment in all the schools of the system was 6778, it is to be assumed that the cost per pupil enrolled anywhere in the system is $1.49.

Operation of plant.—The budget items for operating the plant which the high school and junior college use in common are as follows:

1. Fuel	$ 1,400
2. Light and power	1,200
3. Water	800
4. Janitors	7,000
5. Janitor's supplies	1,000
6. Telephones	250
TOTAL	$11,650

In judging the estimate for fuel, the reader should bear in mind the geographical location of the city. The low fuel cost—low as compared with

[2] This and certain other classifications of expenditure followed in connection with this section are to be found in *Know and Help Your Schools,* Third Report, Directed by the National Committee for Chamber of Commerce Co-operation with the Public Schools and the American City Bureau. New York: American City Bureau. July, 1921.

expenditures of the same sort in other sections of the country, e.g., in the Middle West—is almost compensated for by the large item for water used to keep green during the long dry season the large grounds on which the plant is situated.

This total expenditure for operation should properly be apportioned to the two educational units using the plant on the basis of the proportions of space used by each during an entire school week. The latter was computed and found to be 13.97 per cent for the junior college and the remainder for the high school. This gives a total of 13.97 per cent of $11,650, or $1627.51, chargeable to the junior college. This, in turn, is $10.92 for each of the 149 junior college students enrolled.

Maintenance.—The outlay for repairs on buildings and grounds was $1840. When apportioned in the same way as the item immediately preceding it results in a junior college charge of $257.05, which is $1.73 per student per year.

Fixed charges.—The total expenditure for insurance is $1280 per year. The same proportion of this item as of the two preceding places a total burden of $177.82 against the junior college, which, in turn, is $1.19 per student.

Auxiliary agencies.—The total for auxiliary agencies in the entire system was approximately $11,000. This is equivalent to $1.62 for each of the 6778 pupils and students enrolled.

Annual cost of plant replacement.—One of the most important and at the same time most perplexing items of cost to compute is that for the provision of the plant in which the junior college work is to be carried on, especially when it is required to put it in terms of the cost per year. The steps in the present attempt to arrive at what seems to the writer an approximate figure for the junior college here benig considered are ars follows: (1) ascertaining the total value of the housing and equipment in common use by the high school and junior college, (2) computing the portion of this capital outlay which may properly be assumed to be assigned to the use of the junior college, and (3) computing the annual cost per student per year represented by this portion of the capital outlay and the quota of the interest charge during the period over which the payments on capital extend.

From figures concerning the amount and proportion of insurance protection and supplementary estimates of value it is safe to put the value of the housing and equipment here under consideration at $450,000. This is exclusive of the value of the site, which would need to be hardly if at all different in size if no junior college were being maintained. On the basis of proportion of space used, as indicated in the instances of certain other items of cost above, 13.97 per cent, or $62,865 of this outlay is for the junior

college. The following of a prevalent practice in payment will be assumed, that is, that bonds are issued for this amount and that equal amounts of the indebtedness will be discharged each year for 30 years, the probable period of usefulness of the building. As the rate of interest on most bonds issued by this district is 5 per cent, interest on all unpaid balances at this rate must be included as a part of the total outlay for plant for the junior college unit, and as this is the equivalent of 5 per cent per year for 15 years, or 75 per cent of $62,865, this means a total interest charge to be paid by the district of $47,148.75. This, in turn, means a total expenditure for plant during the thirty-year period of $110,013.75, which is equivalent to $3,667.12 per year, or $24.61 per student per year. Should such a community see fit to pay the full cost of such a building by one large tax levy at the time of construction, the virtual cost of housing and equipping the junior college would be as just computed, because, while not actually paying an interest charge, the taxpayers are deprived of the use of the amount they have invested, this amount decreasing, of course, as the plant depreciates. Although it may be argued that the estimated cost per student per year is probably high because the life of well-constructed buildings is likely to run beyond the limit of 30 years, it is easily conceivable that costs of building construction in certain sections of the country where heavier walls must be built will tend to keep the average somewhere in the vicinity of this figure.

The total cost per student per year.—The following is the list of estimated average costs per student per year for each of the items entering in to the total annual cost per student:

(a) Teaching	$125.00
(b) Other instructional	21.09
(c) General control	1.49
(d) Operation of plant	10.92
(e) Maintenance	1.73
(f) Fixed charges	1.19
(g) Auxiliary agencies	1.62
(h) Plant replacement	24.61
TOTAL	$187.65

The estimate for teaching cost, it will be noted, is not that for the unit here being considered, but that tentatively arrived at earlier in the chapter. Other items agree with the estimates as just made. The total for all items is $187.65. From what has been said of the conservative character of the estimates on certain items, it does not appear to be especially hazardous to assume that a reasonable approximate average cost over all per student in cities of the size represented is $185, with a division of something like $125 for teaching and the remaining $60 for non-teaching items. It is easy to conceive of

situations in which this average cost will and should rise to $200, or something beyond, with $135 for teaching and $65 for non-teaching items. A safe range of cost where conditions are satisfactory is probably somewhere between $175 and something beyond $200.

It will long before this have occurred to those who have been in actual contact with the movement to establish junior colleges in particular communities, that most of those who have urged this expansion have not referred to the items of cost other than (a) and (b) in the list above, except perhaps to point out that in the initial stages the district would, by such establishment, be put to no additional outlay for items like (c), (d), (e), (f), (g), or (h). And let it be said on behalf of these advocates of the junior college, there is seldom, if ever, real misrepresentation of the situation at the time financial feasibility is discussed in this way. Usually, at first, a small unit only is contemplated, one that can be accommodated with small additions to the teaching staff and of lesser instructional facilities only, and without significant additions to overhead costs, enlargement of space provisions involving further cost in operation, maintenance, etc. It has been fortunate that, during earlier experimental stages of the movement, beginnings under these relatively inexpensive conditions have been possible.

But this facility of initiating the movement should not prevent our being alert to all the aspects of financial responsibility involved when a unit is well established and of a size not far from that proposed as a desirable minimum. In most situations long before a junior college student body of this size can be assembled, the high school student body with which it is associated will have grown to such proportions as to require all the space used by the junior college and more. This will entail the provision of additional space, and this in turn is certain to increase the cost of operation, maintenance, fixed charges, auxiliary agencies, and plant replacement. They must even in time affect also the cost of general control. Certainly if a state system of junior colleges is contemplated, losing sight of non-instructional factors of cost would eventually militate against the efficiency of the plan, or at least against the willingness of communities to bear the junior college burden.

IV. The Curricular Distribution of Students As a Factor in Cost

The problem.—The preceding estimate of junior college costs per student enrolled was worked out without special reference to students pursuing, or with intent to pursue, professional or preprofessional curricula during these two collegiate years. A considerable number of students in several of the junior colleges represented were registered for work pertaining to such curricula, but, as no special study was made of the proportion

they are of the whole number, it was not possible to give special consideration to the extent to which providing the courses they need affects the average cost per student. It is correct to assume, however, that the proportion is smaller than that which would be found in any random sampling of students enrolled in the first two years of work in all types of higher institutions. In order to make a dependable estimate along these lines with a view to passing at least some kind of judgment on the influence upon cost of providing one or more of the several lines of special work represented, the problem of curricular distribution is here approached in another manner.

Curricular distribution in higher institutions.—The bases for the estimate made have been provided by studies from which materials have been drawn for earlier portions of this report, more especially in the chapter immediately preceding the present one and in Chapter XXIV on the trend of enrolment in higher institutions. The portions pertinent here are shown in Table CCXXI, which gives the distribution by line of work pursued of 7588 graduates of high schools enrolled in the first two years of work in higher institutions and of registration by school or college of 63,724 students enrolled during 1919-20 in a dozen western and mid-western universities. The first pair of columns is made from the last column of Table CCXI in the preceding chapter. The principal deviations from the distribution there given are the omission of 1297 students in normal schools and occasional regrouping of students in other lines to conform to the needs of the distribution in the second pair of columns. The latter are self-explanatory.

A few comments are necessary to assist in ascertaining the degree of comparability of the percentage columns. It must be borne in mind that the first pair of columns concerns only students enrolled in the first two years of higher institutions, whereas the latter refers to students of all possible collegiate classifications. This fact leads us to expect some differences in the percentage distributions. Then, too, the universities are, for the most part, located in cities of larger size than are the high schools represented, and this will explain the somewhat larger proportions of students in the former in such lines as commerce and engineering. It must be remembered also that students in pre-legal, pre-medical, and pre-education curricula in the distribution of 7588 high school graduates represented in the first pair of columns have been classified as liberal arts students.

Since the better dental schools will be in a position soon to require, as do medical colleges, two years of preprofessional work, we are warranted in including for predictive purposes the 1.9 per cent the dental students are of the total of 7588 high school graduates represented in the second and third columns of the table with the 67.4 per cent designated as liberal arts

students. This means 69.3 per cent—a shade short of seven tenths—of all students enrolled in general work, with approximately 30 per cent registered in varying proportions, as may be judged by the materials of Chapter IV, in specialized curricula or schools. The group in the last two columns comparable with this liberal arts group would include liberal arts, graduate, law, medicine, dentistry, education, divinity, journalism, and library training, the percentages of which when added, total 64.1. This is a proportion not much smaller than that obtained in the previous computation. The comparison seems to justify the belief that, under normal conditions and with a satisfactory offering available, not far from two thirds to seven tenths of a junior college student body can be expected to enroll in liberal arts or lines closely related, while the remainder—a third or less—will register in other special curricula provided. This means for the desirable minimum size of unit proposed, 200 students, that something less than 150 will be enrolled in liberal arts, or general curricula, the remainder in specialized curricula.

TABLE CCXXI

DISTRIBUTION BY LINE OF WORK PURSUED OF 7588 GRADUATES OF HIGH SCHOOLS ENROLLED IN THE FIRST TWO YEARS OF WORK IN HIGHER INSTITUTIONS AND OF REGISTRATION BY SCHOOL OR COLLEGE OF 63,724 STUDENTS ENROLLED IN 1919-20 IN 12 WESTERN AND MID-WESTERN UNIVERSITIES

CURRICULUM, COLLEGE OR SCHOOL	DISTRIBUTION OF HIGH SCHOOL GRADUATES IN FIRST 2 YEARS		DISTRIBUTION OF STUDENTS IN 12 UNIVERSITIES	
	Number	Per Cent	Number	Per Cent
Liberal arts	5,114	67.4	26,777	42.1
Graduate	....	....	4,804	7.5
Law (including jurisprudence)	....	....	2,127	3.3
Medicine	....	....	2,736	4.3
Dentistry	141	1.9	1,664	2.7
Pharmacy	65	0.9	796	1.2
Nursing	38	0.5	396	0.6
Education	....	....	2,120	3.3
Divinity	....	....	157	0.2
Commerce	512	6.7	6,688	10.5
Journalism	....	....	393	0.6
Library training	....	....	81	0.1
Engineering and architecture	876	11.5	9,405	14.8
Agriculture	245	3.2	3,927	6.2
Forestry	....	....	135	0.2
Home economics	201	2.6	47	0.1
Fine arts (including music)	295	3.9	1,395	2.2
Miscellaneous	101	1.3	76	0.1
TOTALS	7,588	99.9	63,724	100.0

Guidance in the precedence to be given in providing these specialized curricula is to some extent afforded by the proportionate registration in those curricula or schools as shown in the table. First would come the engineering group and after these in order would come, to mention only those more frequently elected, commerce, agriculture, and home economics. The fine arts as here classified include such a wide variety of curricula, that it may be assumed that any one of them would enroll relatively small percentages of any considerable number of students.

The financial significance of these proportionate registrations.—The most important conclusion from these distributions is that the cost per student as estimated, being based on a student body rather largely liberal arts as here classified, is to be regarded as pertinent for the overwhelming majority of the probable junior college enrolment. A second conclusion, in the nature of a corollary, is that the proportion of non-liberal arts students is relatively small and cannot, therefore, bring the average cost far above the estimate ventured. This group will rise to larger proportions as the junior college comes to provide training in the semiprofessions. Additional mitigating circumstances are (1) the fact that expenditures for some of this work have entered into the estimate made, (2) in some lines like commerce and home economics, if classes are kept at good size, the costs are not likely to be much if any higher on the average, (3) much of the work taken by students in some of the special curricula represented is of the liberal arts (or non-special) type, and (4) the lower or junior college levels of work in most of these specialized curricula, e.g., engineering, are much less expensive than are the upper or senior college levels.

It must be apparent that, in order to keep the cost per student near a reasonable figure, it will not be practicable to attempt to provide the first two years of all preprofessional and professional curricula beginning with the first college year in all junior college units. As with the high schools, it will be found necessary to restrict the smaller junior colleges to fewer of these specialized curricula than can be economically maintained in the larger ones. It will be possible to defend the introduction into a single larger unit of all or nearly all types of curricula to be found in the first two years of our present university organization. Certainly the introduction of all necessary types will be feasible and necessary in any complete state system of junior colleges.

The discussion of this subject should not be dropped without reference again to the simplification of curricular problems that is almost certain to follow the general adoption of the junior college plan which involves the upward extension of the secondary school. The popularization of these school years that will in this way be achieved will encourage the setting up of preprofessional curricula ending with the sophomore college year in

professional lines in which the desire to do so has sometimes appeared, as it has, for example, in engineering, but in which it does not seem practicable in the conventional organization of higher education.

V. The Financial Problem of Establishing Junior Colleges in Particular Communities in Two States

The next steps in the study of the financial problem.—Having procured an estimated annual cost per junior college student enrolled, the logical next steps are in the direction of the consideration of the financial responsibilities involved in establishing junior colleges in particular communities. As it was early apparent that these responsibilities are in a large proportion of communities of such a magnitude that they should seldom if ever be borne alone by the municipality or school district, the feature of state establishment or subsidy seemed inevitable, and, in consequence, the financial problem of junior college establishment has been canvassed for all possible localities in two mid-western states in which notable beginnings in the movement have already been made, viz., Michigan and Minnesota. Throughout this aspect of the study the typical minimum of 200 students has been assumed and the cost of a unit of this size (or larger where the source of student body seems to warrant) considered in several significant ways.

The size of cities represented.—The study includes cities of a wide range of size, the aim being to scrutinize this aspect of the financial problem as fully as necessary, so that the most suitable size of city might have the opportunity to emerge in the process of inquiry. In order to provide a number of cities sufficiently large to make a comparative study possible, some already provided with higher institutions have been included, although the problem of junior college establishment is not likely soon to arise in many such because of the presence there of opportunities for education on the collegiate level. In Michigan all cities with populations of 7000 and over have been included, while in Minnesota, because of its lesser number of municipalities of good size, those included reach down to 5000.

The distribution of these cities by size is shown in Table CCXXII. It will be seen that totals of 37 and 26 cities are considered, respectively, in the two states, although the financial responsibilities in those having populations of more than 100,000 are not given as much consideration as others, a procedure justified by the fact that centers of population are likewise usually also centers of wealth in which financial problems of junior college establishment cannot, relatively speaking, loom as large. A glance down the distributions for the two states will bear out the statement made concerning the difference in the numbers of cities of large size. It may be seen that 12, or almost a third, of the cities in Michigan included had populations in excess of 20,000, while there were only 3 such in Minnesota. It is evident

at once that, where the establishment of state systems of junior colleges is under consideration, the latter would be obliged to resort to a larger extent than would the former to communities of moderate size.

TABLE CCXXII

NUMBERS OF CITIES OF EACH SIZE OF POPULATION IN MICHIGAN AND MINNESOTA

POPULATION	MICHIGAN	MINNESOTA[a]
5,000- 7,000	..	5
7,000- 10,000	12[b]	10
10,000- 15,000	11	5
15,000- 20,000	2	3
20,000- 30,000	1	..
30,000- 40,000	3	..
40,000- 50,000	3	..
50,000- 75,000	2	..
75,000-100,000	1	..
101,007	..	1
137,634	1	..
238,565	..	1
396,416	..	1
993,739	1	..
TOTAL NUMBER	37	26

[a] Estimated for 1921-22.

[b] One city, Ionia, with a population of 6935.

The figures of populations used for Michigan are those of the 1920 census. Those for Minnesota are estimates for the year 1922. The method of estimate here was simply that of adding or subtracting a fifth of the increase or decrease in population experienced by each city during the decade from 1910 to 1920. The reason for not adhering to the census data for both states is the availability of financial data for the cities of Minnesota for the school year 1921-22, whereas the latest data readily obtainable for Michigan were for the year 1920-21.

The predicted junior college enrolment from local sources.—As the full consideration of the financial problem must involve the bearing upon it of the proportion of students from local sources, it is advisable at this point to present the results of a prediction of the number of such students in each community represented in the study. These are supplied in Table CCXXIII. The method of securing the estimates that have been used in assembling this table will require a word of explanation. In the foregoing chapter it was shown that those high school graduates who are enrolled in the first two years of collegiate work in a community having within it a

college or other higher institution constitute 17.3 per cent of the total high school enrolment. This percentage has been applied to the high school enrolments of the communities under consideration and the resulting number introduced into the table. For example, Manistee, a city of Michigan with a population in 1920 of 9694, had 300 enrolled in its high school. The assumption that of its graduates a number equal to 17.3 per cent of this enrolment would be enrolled in a local junior college if established would give us one case of 52 students to record in the second column of Table CCXXIII, i.e., one of the 10 cases estimated to afford 40 to 59 junior college students. At the foot of the table will be found the medians of these predicted enrolments.

TABLE CCXXIII

PREDICTED JUNIOR COLLEGE ENROLMENTS FROM LOCAL SOURCES IN THE CITIES OF MICHIGAN AND MINNESOTA

ESTIMATED JUNIOR COLLEGE ENROLMENT FROM LOCAL SOURCES	NUMBER OF CITIES IN						
	Michigan				Minnesota		
	7,000 to 10,000	10,000 to 20,000	30,000 to 40,000	7,000 to 40,000	5,000 to 10,000	10,000 to 20,000	5,000 to 20,000
Less than 40	1	..	..	1	..	..	..
40- 59	10	3	..	13	3	..	3
60- 79	1	5[a]	..	6	8	..	8
80- 99	..	4	..	4	4	3	7
100-119	..	..	..	..	..	1	1
120-139	..	..	2	2	..	..	..
140-159	..	2	..	2	..	3	3
160-179	..	..	..	..	..	1	1
180-199	..	..	..	..	..	..	..
200-219	..	..	1	1	..	..	..
NUMBER OF CITIES	12	14	3	29	15	8	23
Median number of local students	51.5	76.0	..	..	67.0	120.0	..

[a] One city of 25,944 included.

Both the distributions and medians of predicted enrolments show that the numbers increase with something approaching consistency. Perhaps the most striking discovery of the table is the much larger numbers of students expected in the cities of similar population groups for Minnesota than for Michigan, a difference apparent in both distributions and medians. If junior colleges were to be established only in cities where at least a majority of the typical minimum of 200 students is to be drawn from local sources, in Michigan this would mean cities of 30,000-40,000, while in Minnesota this

number could be expected in the next lower population group, i.e., 10,000-20,000. This may have its explanation in several factors, but one at least is the larger industrial developments in the cities of Michigan, providing more opportunities for employment of children of secondary school age.

TABLE CCXXIV

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN CITIES OF MICHIGAN WITH POPULATIONS OF 7,000–10,000[a]

(Cities listed in the order of size of school tax rate in 1920)

CITY	POPULATION IN 1920	LOCAL SCHOOL TAX LEVY IN MILLS, 1920	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
			Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase
1. Negaunee	7419	4.22	6.17	46.2	4.69	11.1	4.59	8.8
2. Ludington	8810	7.63	12.77	67.4	8.94	17.2	8.61	12.8
3. Alma	7542	7.83	10.67	36.3	8.74	11.6	8.63	10.2
4. Manistee	9694	8.52	12.95	52.0	9.67	13.5	9.49	11.4
5. Ionia	6935	9.96	17.70	77.7	11.39	14.4	11.13	11.7
6. Cadillac	9750	10.70	14.61	36.5	11.78	10.1	11.62	8.6
7. Grand Haven	7205	10.75	16.91	57.3	12.11	12.6	11.86	10.3
8. Albion	8354	12.00	17.78	48.2	13.56	13.0	13.32	11.0
9. Niles	7311	13.00	20.23	55.6	14.66	12.8	14.47	11.3
10. Hancock	7527	14.60	23.88	63.6	16.87	15.5	16.26	11.4
11. Ypsilanti	7413	15.00	19.78	31.9	16.27	8.5	16.14	7.6
12. Iron Mountain	8251	18.19	24.59	35.2	19.98	9.8	19.66	8.1
MEDIAN	7535	10.73	17.31	50.1	11.95	12.7	11.74	10.7

[a] One city, Ionia, had a population of 6935.

The procedure in making the financial estimates. (a) Michigan.—The data utilized in preparing Tables CCXXIV, CCXXV, and CCXXVI, interpretation of which is soon to follow, were almost exclusively drawn from a financial study appearing in the *Eighty-fourth Annual Report of the Superintendent of Public Instruction of the State of Michigan.*[3] This supplied the assessed valuation, which in Michigan is presumed to be identical with the full valuation of property in the district, the high school enrolment, the local school tax rate, and the amount of funds received from state sources. The item last but one as just listed is to be found in the third column of the tables just referred to, the cities of each group being listed in the order of size of this tax rate. The figures in the fourth column resulted from

[3] Lansing, Michigan, 1922, pp. 62-73.

the addition to this rate of the rate necessary to raise the funds required to maintain a junior college of at least 200 students, or, in the cases of those larger cities in which it is estimated that more than 200 local students will demand the work, of the rate necessary to raise the funds required to maintain junior colleges with the enrolments from local sources estimated. The situation in Negaunee (see Table CCXXIV) will be used to illustrate this and the subsequent steps in the computations made. The local tax rate for the year concerned was 4.22 mills. As the estimated total annual cost per student enrolled has been put in an earlier portion of the current chapter at $185, provision for the full cost of maintaining a junior college of 200 students would involve an additional annual outlay of $37,000. Upon an assessed valuation of $18,945,540 reported for Negaunee, this means an additional tax rate of 1.95 mills. Adding this to the 4.22 mills gives the rate of 6.17 mills reported in the fourth column. This increase in rate is 46.2 per cent (see next column) of 4.22 mills.

TABLE CCXXV

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN CITIES OF MICHIGAN WITH POPULATIONS OF 10,000–20,000[a]

(Cities listed in the order of size of school tax rate in 1920)

CITY	POPULATION IN 1920	LOCAL SCHOOL TAX LEVY IN MILLS, 1920	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
			Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase
1. Alpena	11,701	5.90	9.56	62.0	6.78	17.3	6.52	10.5
2. Ishpeming	10,500	6.42	8.92	38.9	7.45	16.0	7.12	12.5
3. Marquette	12,718	7.23	10.58	46.3	8.18	13.1	7.90	9.3
4. Ann Arbor	19,516	8.10	9.31	14.9	8.98	10.9	8.88	9.6
5. Monroe	11,573	8.33	11.28	35.4	8.99	7.9	8.89	6.7
6. Ironwood	15,739	8.67	10.14	16.9	9.20	6.1	9.13	5.3
7. Sault Ste. Marie	12,096	9.35	11.73	25.5	10.30	10.2	10.15	8.6
8. Holland	12,166	9.73	12.47	28.2	10.94	12.4	10.74	10.4
9. Traverse City	10,925	10.44	15.27	46.3	12.54	20.1	12.19	16.8
10. Port Huron	25,944	10.75	11.91	10.8	11.10	3.3	11.06	2.9
11. Adrian	11,878	11.20	13.94	24.5	13.31	18.8	13.06	16.6
12. Owosso	12,575	11.32	15.02	32.7	12.71	12.3	12.47	10.2
13. Escanaba	13,103	11.56	16.34	41.3	13.26	14.7	12.82	10.9
14. Wyandotte	13,851	12.09	13.98	15.6	12.76	5.5	12.70	5.0
MEDIAN	12,371	9.54	11.82	30.5	10.62	12.4	10.45	9.9

[a] One city, Port Huron, had a population of 25,944.

TABLE CCXXVI

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN CITIES OF MICHIGAN WITH POPULATIONS OF 30,000–100,000

(Cities listed in the order of size of school tax rate in 1920)

CITY	POPULATION IN 1920	LOCAL SCHOOL TAX LEVY IN MILLS, 1920	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
			Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase
1. Highland Park[a]	46,499	7.45	7.94	6.7	7.94	6.7	7.91	6.3
2. Saginaw	61,903	8.27	8.96	8.3	8.96	8.3	8.84	6.9
3. Kalamazoo	48,437	8.61	9.27	7.7	9.27	7.7	9.18	6.6
4. Battle Creek	36,164	8.67	9.58	10.5	9.58	10.5	9.46	9.1
5. Flint	91,599	8.78	9.13	4.0	9.09	3.5	9.06	3.2
6. Jackson	48,374	8.85	10.33	16.7	10.33	16.7	10.09	14.0
7. Muskegon	36,570	10.14	11.55	13.9	11.04	8.9	10.87	7.2
8. Pontiac[a]	34,273	13.74	15.11	10.0	14.59	6.2	14.48	5.4
9. Lansing	51,327	20.35	21.30	4.7	21.30	4.7	21.23	4.3
MEDIAN	48,437	8.78	9.58	8.3	9.58	7.7	9.46	6.6

[a] Maintaining junior college work during year financial data for which are under consideration.

As the high school enrolment reported for Negaunee was 275, 48 junior college students would be likely to be drawn from the home district, the remaining 152 of the minimum unit of 200 to be nonresidents. On the assumption that Negaunee would pay the cost for the 48 local students, an assumption which carries with it another that the cost for the remainder would be covered by state aid or a tuition charge, the additional cost to Negaunee in this instance would be $8880. This involves an increase of the original rate of 4.22 mills by .47 mills, bringing the total millage up to 4.69 as shown in the sixth column of Table CCXXIV. This, again, is an increase in the rate of 11.1 per cent. (See seventh column.)

If it should be regarded as proper that state aid be given for *resident* students in the same proportion as the district is being assisted in maintaining its lower schools and computations are made in accordance with such a principle, we obtain the figures in the last two columns of the table. The total revenue of Negaunee from state sources was $20,544, which was 20.1 per cent of all revenues for the year. Reducing the cost of $8880 by this percentage would still require a millage of .37 to cover the cost for local students, a millage which involves 8.8 per cent increase in the amount that was spent for the support of lower schools.

(b) Minnesota.—The data utilized for Tables CCXXVII and CCXXVIII were for the most part obtained in the offices of the State Department of Education, the one exception being the items pertaining to what is designated as the "tax on moneys and credits." The data pertaining to moneys and credits were obtained at the offices of the State Tax Commission. It is necessary for this state to point out only the essential differences between the situation in, and procedure for, Michigan as just described. Taxes are levied not on the full valuation but on a proportion which, in the cities concerned, is 40 per cent of the full value of real estate and of personal property. Moneys and credits are, however, not taxed as is other personal property, which is the practice in Michigan, but at the rate of $3 per $1000 of full value. A third of this tax, i.e., $1 per $1000, is assigned to the local school district. In order to arrive at the school tax rates as reported in the tables referred to, the sum of the revenue from the local school tax rate and the district income from the tax on moneys and credits was divided by the sum of the assessed valuations of real and personal property and moneys and credits. Other than this, procedures for the two states were identical.

TABLE CCXXVII

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN CITIES OF MINNESOTA WITH POPULATIONS OF 5,000–10,000

(Cities listed in order of size of school tax in 1922)

CITY	POPULATION IN 1922	LOCAL SCHOOL TAX LEVY IN MILLS, 1920	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
			Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase
1. Chisholm	9310	17.40	18.48	6.2	17.84	2.5	17.83	2.5
2. Red Wing	8555	24.96	33.10	33.6	27.93	12.3	27.66	11.2
3. Eveleth[a]	7239	26.84	28.58	6.5	27.64	3.0	27.63	2.9
4. Ely	5168	29.15	33.63	15.4	30.63	5.1	30.50	4.6
5. South St. Paul	7330	31.54	36.66	16.4	32.79	4.0	32.72	3.8
6. Fergus Falls	7720	33.87	47.02	39.5	39.99	16.6	38.49	13.9
7. Crookston	6655	35.10	50.23	43.6	39.72	13.3	39.11	11.6
8. Stillwater	7243	37.52	50.76	36.0	42.68	14.0	41.96	12.1
9. Willmar	6243	38.88	53.62	38.3	43.82	12.8	43.16	11.1
10. Little Falls	5385	39.67	57.51	45.0	46.10	16.2	44.76	12.8
11. Albert Lea	8429	42.33	49.83	17.8	45.56	7.7	45.19	6.8
12. Brainerd	9840	44.26	56.59	28.0	47.96	8.4	47.56	7.5
13. Owatonna	7571	45.62	56.13	23.2	49.09	7.6	48.69	6.8
14. Moorhead	5896	51.85	66.82	29.1	56.19	8.4	55.78	7.6
15. Bemidji	7483	65.22	83.51	28.2	70.07	7.5	69.38	6.4
MEDIAN	7330	37.52	50.23	28.2	42.68	8.4	41.96	7.5

[a] Maintaining junior college work during year financial data for which are under consideration.

TABLE CCXXVIII

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN CITIES OF MINNESOTA WITH POPULATIONS OF 10,000–20,000

(Cities listed in order of size of school tax in 1922)

CITY	POPULATION IN 1922	LOCAL SCHOOL TAX LEVY IN MILLS, 1920	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
			Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase	Total Mill Levy	Per Cent Increase
1. Hibbing[a]	16,340	13.77	14.07	2.2	13.96	1.4	13.96	1.5
2. Virginia	14,732	22.66	23.55	3.9	23.32	2.9	23.31	2.9
3. Rochester[a]	14,899	27.88	31.90	14.4	29,83	7.0	29.61	6.3
4. Winona	19,255	29.70	33.85	14.5	32.21	8.8	32.03	8.1
5. St. Cloud	16,927	33.33	38.89	15.0	36.47	8.5	36.21	7.8
6. Mankato	12,890	38.11	43.27	13.6	41.26	8.3	40.95	7.5
7. Faribault	11,507	39.51	48.82	23.7	43.56	10.3	43.01	8.9
8. Austin	10,750	42.14	50.55	20.1	45.71	8.5	45.26	7.4
MEDIAN	14,816	31.52	36.37	14.4	34.34	8.4	34.12	7.4

[a] Maintaining junior college work during year financial data for which are under consideration.

No effort was made to equate the tax rates in the two states in harmony with the differing proportions of valuation upon which the rates were levied. The reader who desires to make comparisons between the states can do so in an approximate way by taking 40 per cent of the rates shown for Minnesota or by multiplying the rates shown for Michigan by 2.5.

Seven of the cities represented in the study, 3 of them in Michigan and 4 in Minnesota, were already maintaining junior colleges during the years to which the data used pertain. For these it was necessary to make an estimate of the cost of the work and to reduce the local school tax rate proportionately before proceeding with the steps in computation as described. Although such estimates could not be accurate, the corrections made will at least approximate those that would be made had data on actual expenditures been at hand.

Effect of junior college establishment on the local school tax rate in cities of the different population groups.—The chief items of significance of the first five tables (CCXXIV-CCXXVIII) are readily discoverable. The tax rates necessary to maintain the lower schools as shown in the third column are seen to vary widely. For the group of smaller cities of Michigan (Table CCXXIV) the range is from 4.22 mills to 18.19 mills, the highest

being more than 4 times as large as the lowest. The median rate is computed at 10.73 mills. The increment to the tax rate that would be imposed by the support of a unit of 200 students (Situation 1 as shown in the fourth and fifth columns) also varies widely, i.e., from slightly less than a third (31.9 per cent) to more than three fourths (77.7 per cent). The median increment in these smaller cities is seen to be almost exactly a half. While no absolute criterion of what is practicable in this connection is at hand, it is too obvious for argument that an increment of such a magnitude is not to be thought of.

The sixth and seventh columns show that the rates and increment just referred to are much reduced when the community carries only the burden of students from local sources (Situation 2). The range of increment is 8.5 to 17.2 per cent, the median being 12.7 per cent, or approximately an eighth of the burden for maintaining the lower schools. It must be kept in mind that this large subtraction from the increment is directly attributable to the small total number and relatively small proportion of junior college students for which the local district would be assuming financial responsibility. This has already been shown in Table CCXXIII, which discloses that of a unit of 200 junior college students the smaller cities represented would be likely to supply only an approximate fourth. Under this condition the costs for the remaining three fourths of the minimum desirable student body would need to be met in some other way, as by tuition or state aid. A tuition charge large enough to cover these costs would be prohibitive and would thereby thwart the performance of important special purposes of the new unit. As pointed out in the foregoing chapter, the performance of such purposes is already too much endangered by having less than a majority of students from local sources. The question of whether a scheme of state aid should go as far as would be required in these smaller cities may best be left for later consideration.

The chief conclusion to be drawn from the data touching Situation 3 (last two columns) is, that if the state assists for the group of local students merely in the proportion it is now assisting in maintaining education on the lower levels, only a small proportion of the burden of additional cost will be lifted from the local community, as the differences between the pairs of median rates and median percentages at the foot of Table CCXXIV are seen to be relatively inconsiderable.

The essential difference between Tables CCXXIV and CCXXV is the tendency to smaller rates and percentages in the latter. This is shown both in the distributions and in the medians at the foot of the tables. The median rate for maintaining lower schools is less by something more than a mill in the larger cities, and the rates for maintaining junior college work in addition are also less. This is especially true for Situation 1, where there is a

reduction of increment of almost 20 per cent. Other differences are not as marked. Corresponding measures for Table CCXXVI, which pertains to the cities of 30,000-100,000, are likewise even lower than for cities in Table CCXXV. In cities of this size there is relatively little difference between the increments for Situations 1 and 2, because in these it is possible to recruit either the full total or more than the full total enrolment of the minimum desirable junior college from local sources. Assessed valuations are also so large that all other measures are appreciably lower.

The predicted effect of junior college establishment as shown for the two groups of cities of Minnesota in Tables CCXXVII and CCXXVIII, is not identical with that just presented for the cities of Michigan, although there are certain important resemblances. The rates both for maintaining lower schools and for the addition of the junior college burden, appear to be much higher, but much of this difference has already been explained away by the description of the differences between the bases of assessment in the two states, Michigan assessing at full value and Minnesota in these cities for the most part assessing at 40 per cent of full value. The percentage of increase for Situation 1 for the smaller group of cities tends to be much less than in cities of the same size in Michigan, and these increases for the two remaining situations are also considerably smaller. The increment in cities with populations of 10,000-20,000 as given in Table CCXXVIII differs from that just referred to only for Situation 1, in which the percentage of cost added is only slightly more than half as large as in cities of 5,000-10,000 in this state, Situations 2 and 3 showing percentages of increase almost exactly equal to those in the group of smaller cities.

In order to facilitate comparison of the financial problem in these two states the median rates and percentages of the five tables just examined are introduced into Table CCXXIX. Here and in Figure 99 are re-emphasized the tendency to a decline in tax rates and percentage increments of cost as we proceed from the smaller to the larger cities. The decline is seen to be especially marked for Situation 1 for reasons already given. As pointed out, there is no decline—or practically none—between the two groups of cities in Minnesota for Situations 2 and 3. The table and figure also show the typical differences for each group of cities as we proceed from Situation 1 to Situation 2, and then to Situation 3 as these have been described. They suggest again the patent impossibility of Situation 1 for all but the largest cities. To the writer, they suggest also the relative impracticability of asking the typical city of any group to bear the total burden for junior college students from local sources with or without the present proportions of state aid, especially in view of desirable expansions of lower school support along other lines than those now being maintained. An increase of the local school burden even as low as 7 to 10 per cent is far from a minor matter.

TABLE CCXXIX

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE LOCAL TAX RATE FOR SCHOOLS IN THE CITIES OF MICHIGAN AND MINNESOTA

STATE AND GROUP OF CITIES	MEDIAN LOCAL SCHOOL TAX LEVY IN MILLS	1. DISTRICT ADDING TOTAL COST FOR 200 STUDENTS		2. DISTRICT ADDING COST FOR LOCAL STUDENTS ONLY		3. DISTRICT AIDED FOR LOCAL STUDENTS AT PRESENT RATE	
		Median Total Mill Levy	Median Per Cent Increase	Median Total Mill Levy	Median Per Cent Increase	Median Total Mill Levy	Median Per Cent Increase
MICHIGAN							
7,000- 10,000	10.73	17.31	50.1	11.95	12.7	11.74	10.7
10,000- 20,000	9.54	11.82	30.5	10.62	12.4	10.45	9.9
30,000-100,000	8.78	9.58	8.3	9.58	7.7	9.46	6.6
MINNESOTA							
5,000- 10,000	37.52	50.23	28.2	42.68	8.4	41.96	7.5
10,000- 20,000	31.52	36.37	14.4	34.34	8.4	34.12	7.4

Effect of junior college establishment on the cost of education per capita of the population.—Another method of examining the effect of establishing junior college work on the financial burden in the cities so far concerned is to compute the cost per capital of the population of maintaining the lower schools and the cost per capita of the additional burdens imposed if junior college establishment is accomplished under either of the three situations being considered. In order to save space only the table showing medians for each of the groups of cities and a figure designed to bring out the relationships more clearly are here given (CCXXX). These illustrate once more the impossibility of providing junior colleges if they are to be maintained in the smaller cities under the conditions of Situation 1, and the relative impracticability of doing so under Situations 2 and 3. Because centers of population are to some extent also centers of wealth, the difficulty seems not to be as great in the largest cities, e.g., in the cities of Michigan with populations of 30,000-100,000.

The problem in cities of more than 100,000 population.—In the two states being considered there are five cities with populations in excess of 100,000. In Michigan these are Grand Rapids and Detroit; in Minnesota they are Duluth, St. Paul, and Minneapolis. Computations have been made for these cities analogous to those made for all lesser municipalities with the following conclusions: (1) The tax rates for maintaining lower schools are lower than the median rates for the groups of smaller cities in the respective states. (2) Except for Grand Rapids the increment for maintaining junior college work under Situations 1, 2, and 3 would be lower than for the groups of

smaller cities. (3) Except for Grand Rapids the cost per capita of the population would be lower than in the smaller groups of cities in the respective states. Thus, the data concerning these largest cities bear out the general tendencies shown in the study of the groups of smaller cities. It should be recalled in this connection that, because in all these cities the local junior college enrolment would run in excess of 200 students, none would be required, according to the method of computation used under Situation 1, to carry a burden of cost for nonresident students such as this situation would impose upon cities of the two smallest population groups. For example, applying the percentage recommended by the findings of the foregoing chapter, Minneapolis would have 2289 junior college students and would be charged for these only in the computations for Situation 1 to which reference has just been made, and obviously not for any balance of a minimum desirable enrolment of 200 students.

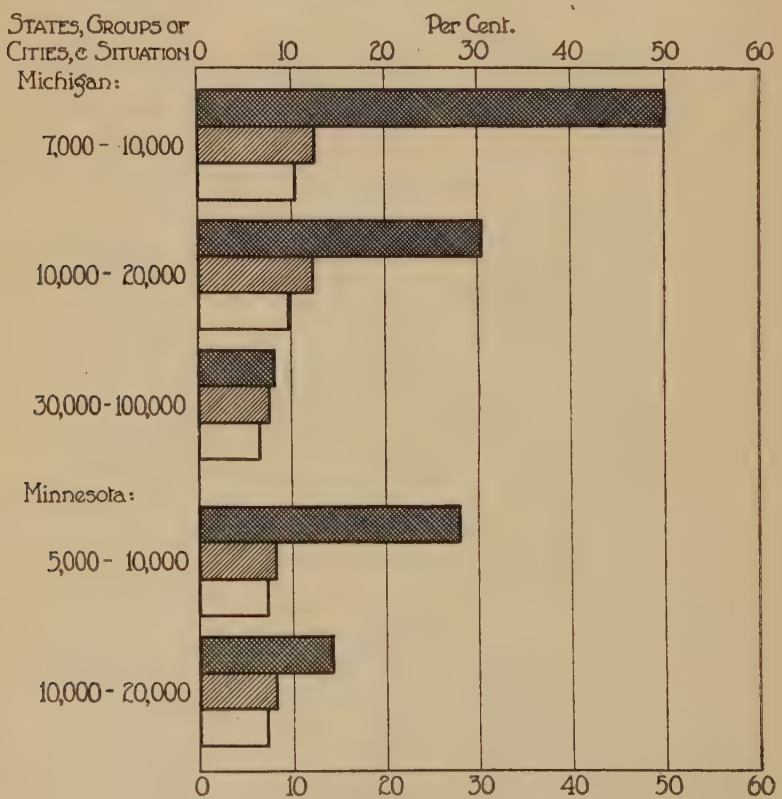

Figure 99

Percentages of increment of local tax rate for schools to maintain junior colleges (crosshatching, district adding total cost for 200 junior college students; single hatching, district adding cost for local students only; in outline, district aided by state for local students at present rate of aid for lower schools)

TABLE CCXXX

EFFECT OF JUNIOR COLLEGE ESTABLISHMENT ON THE COST OF EDUCATION PER CAPITA OF POPULATION IN CITIES OF MICHIGAN AND MINNESOTA

STATE AND GROUP OF CITIES	TAX LEVY IN DOLLARS PER CAPITA OF TOTAL POPULATION			
	Present Local Tax for Elementary and High Schools	Increase if District Adds Total Cost for 200 Junior College Students	Increase if District Adds Costs for Local Students Only	Increase if District Is Aided for Local Students at Present Rate
MICHIGAN				
7,000- 10,000	9.15	4.91	1.18	.94
10,000- 20,000	9.91	2.99	1.05	.89
30,000-100,000	10.19	1.01	.78	.67
MINNESOTA				
5,000- 10,000	17.63	5.05	1.82	1.65
10,000- 20,000	17.24	2.49	1.43	1.24

VI. THE STATE AID NECESSARY FOR MAINTAINING JUNIOR COLLEGES

What the aid would be if provided at present rate for lower schools.—Some notion of the proportion of aid that would be received for junior colleges in the two states represented in this chapter, if it is distributed in the same proportions as is now the practice for lower schools, can be and probably has already been gained by the reader from a consideration of the last two pairs of columns of Tables CCXXIV-CCXXX. Table CCXXXI presents two other measures that put the conditions of such a practice if followed into forms somewhat more readily comprehensible. The first column shows the median percentage which all funds from state sources are of the total school revenues in each of the groups of cities represented in Tables CCXXIV-CCXXX. The second shows what this percentage means in dollars per junior college student, assuming that state aid will be given in these proportions. These amounts were obtained by taking, for example, 16.9 per cent of $185, the estimated total annual cost of junior college education per student enrolled. The percentages and, therefore, the amounts per student, are seen to be somewhat larger in Michigan than in Minnesota. While the amounts are far from negligible, it is clear that if the financial policy touching junior colleges in these states were to be determined by current practices as concerns lower schools, it could not be regarded as a generous one.

The argument for a more generous policy.—Perhaps the most telling consideration supporting a much more generous policy touching junior colleges than seems to be the present one toward the lower schools in these two states is one arising from a comparison of these proportions and amounts with what the state contributes to the education of a student taking work on the junior college level in a state university. The latter amount would

not have been obtainable directly for the two states represented without including in the investigation a special study of costs on this level in the universities of Michigan and Minnesota, and this was not practicable. It is, however, possible to make, on the basis of certain figures available for the University of Minnesota, an estimate that may be accepted as at least an

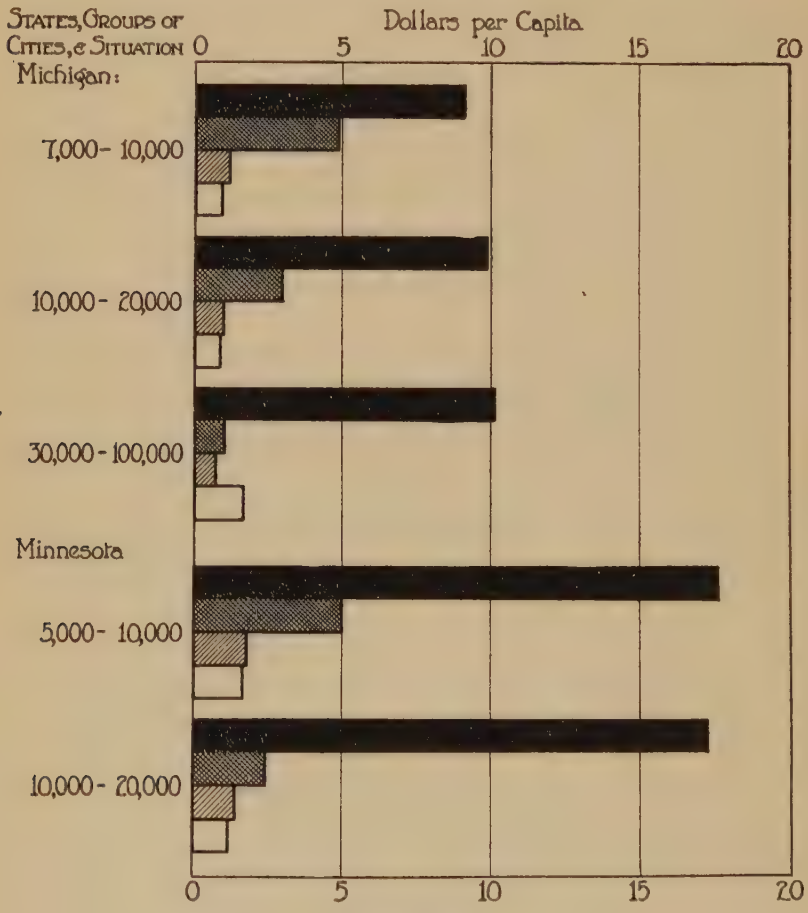

Figure 100

Dollars of increment of local tax per capita of population to maintain junior colleges (black, present cost of lower education per capita; cross-hatching, district adding total cost for 200 junior college students; single hatching, district adding cost for local students only; in outline, district aided by state for local students at present rate of aid for lower schools)

approximation. The average cost over all per student per year in the College of Science, Literature, and the Arts for 1920-21 has been computed at $219.15.[4] This figure was obtained, of course, by including the registra-

[4] Report of the Survey Commission, No. V. The University of Minnesota *Bulletin* 25, No. 7. April 20, 1922. Table XVI, p. 57. The materials of this number were prepared by Dr. J. B. Sears, of Stanford University.

tion of all students, both of the Junior and Senior colleges. It must, therefore, be somewhat higher than that for junior college students only. The cost per junior college student could hardly be more than $200, and is probably somewhat less. From this cost should be subtracted the tuition fee of students who are residents of the state, amounting in this college to $60 for the three quarters of a school year. This leaves an amount not far from $130 to $140 per year that is being contributed directly or indirectly by the state to the education of each student in the first two years of this college. As the cost in freshman and sophomore years in other colleges of the University is in all probability somewhat higher, the difference not being offset by an equivalently higher tuition charge, it is almost certain that this estimate of the average contribution of the state to the education of the individual student in attendance upon work in the first two college years at the University is a conservative one. In such a situation it can hardly be regarded as logical for the state to undertake to subsidize communities providing junior college education any less generously, as, e.g., it would do if such aid were to be in the same proportion as the lower schools are now subsidized. It is worth noting that education on higher than junior college levels in state universities, on account of its higher cost per student, is being subsidized in even larger proportions. Again, it may be judged from conclusions of the chapter dealing with economic democratization (VII) the subsidy is being distributed to those who are on the average somewhat better prepared to carry a larger proportion of the full burden of cost than would those who would avail themselves of the education if it were brought nearer their places of residence through the establishment of junior colleges.

TABLE CCXXXI

AMOUNT PER LOCAL STUDENT, IF THE STATE AIDS DISTRICTS MAINTAINING JUNIOR COLLEGES AT THE SAME RATE LOWER SCHOOLS ARE AIDED

STATE AND GROUP OF CITIES	A. MEDIAN PER CENT STATE AID IS OF PRESENT TOTAL SCHOOL REVENUE	B. MEDIAN AMOUNT PER LOCAL STUDENT, IF JUNIOR COLLEGE IS AIDED IN SAME PROPORTION AS IN A
MICHIGAN		
7,000- 10,000	16.9	$31.27
10,000- 20,000	16.1	29.78
30,000-100,000	13.4	24.79
MINNESOTA		
5,000- 10,000	11.2	20.72
10,000- 20,000	9.1	16.83

A second consideration arises out of the certainty that in many of the cities where the provision of junior college work can be justified as far as the number of students from local sources is concerned, attempts to foot all or most of the junior college bill locally will endanger the interests of education on the lower levels. No plan of establishing junior colleges can be defended which involves a large element of hazard to efficiency of levels of school work, which, because of their greater universality, may be regarded as having prior claims to adequate support. There is sufficient evidence in the tables of the foregoing part of the current chapter, i.e., Tables CCXXIV-CCXXX to constitute a vigorous challenge on this score.

A state policy of generous subsidies for junior colleges is supported, moreover, by any admission that the movement is in accord with the inevitable forces of reorganization in secondary and higher education. Some of the results of the operation of these forces were presented in the chapters of Parts III and IV, and among other things they disclose the important fact that, for most students enrolled, these two junior college years may be rightly looked upon as the concluding years of the period of general, or of secondary, education. Universal practice in this country indicates that we have committed ourselves to a policy of providing secondary education free of cost to the school patron. It would, therefore, be difficult to show why, anticipating the evolution of the secondary school to include the junior college years, any policy should be followed which is likely to oblige the communities maintaining the work to levy a tuition charge against those in attendance. This, it must be evident from the facts concerning the widely differing resources where junior colleges are otherwise feasible and from the imperativeness of safeguarding the interests of education on lower levels, it would be difficult to avoid without generous subvention by the state.

What one state is doing.—In California, a state in which the public junior college has made more progress than in any other, state support has within the last few years arrived at a stage much nearer a desirable one than that which would characterize a policy of assistance in proportion to current conditions of state aid for lower schools in Michigan or Minnesota. To each junior college maintained in districts organized in accordance with a law passed in 1921 there is paid an allotment of $2000 per annum and an attendance grant of $100 per student in average daily attendance, one condition being that "no junior college district shall receive any state allotment unless it has provided during the preceding school year an amount for maintenance at least equal to the amount apportioned by the state."[5] Assuming a student body of a hundred from local sources, the allotment is equal to $20 per student per year. This, with the attendance grant of $100 per student, is not

[5] F. H. Swift, Studies in Public School Finance—California and Colorado. Research Publications of the University of Minnesota, *Education Series*. No. 1, p. 115.

far from the estimated amount the state of Minnesota is without reimbursement paying out for the education of the average student in junior college years of the College of Science, Literature, and the Arts of its state university. It is, however, in excess of the amount of aid being paid to districts of California still maintaining junior colleges under the law under which they were established previous to 1921, and there are several of these.

Differentiating aid for residents and for nonresidents.—The data of the foregoing as well as of the current chapter make it evident that, in order to recruit the minimum desirable unit, many communities will need to draw considerable proportions of their junior college student bodies from beyond the district borders. The tables of the present chapter emphasize the often impossible increase in the local tax rate for schools that must be imposed if these communities endeavor to carry the burden of providing education on this level for both resident and a large number and proportion of nonresident students. If we grant the desirability of having a state policy of junior college encouragement that opens up opportunities of education on this level in much the same manner in which it has been achieved in many states on the conventional high school level, we have the need of relieving the community in which the junior college is maintained of all or nearly all the burden of cost for nonresidents. The fact that junior college establishment, on account of its demands in the way of population and high school enrolment, can properly be accomplished in a relatively small number of communities as compared with those in which high school work can and should be given, makes the need, if anything, more imperative. The district in which the junior college is maintained must be made fully willing to accept all nonresident students.

California has taken steps in this direction as may be seen in the following digest of the statutory provision:

> The act providing for the organization of junior-college districts and for the maintenance of junior colleges therein, approved May 27, 1921, endeavors to make junior colleges accessible to students residing in counties wherein no such college is located. The provisions in the present case are similar to those relating to high schools. In each county wherein there is not a junior college, the county superintendent is required to certify annually to the Board of County Supervisors and to the county auditor the total net cost, less state aid, for educating, during the next preceding year, all junior college pupils residing in such county but not in any junior-college district, and the estimated amount needed for that purpose for the current year.
>
> A special tax upon all taxable property within the county not situated in any junior-college district must be levied by the County Board of Supervisors. This tax must be sufficient to defray the net cost of educating [less state aid], for the current year, students attending a junior college in an adjoining county.
>
> If the Board of Supervisors fails to make such a levy, the county auditor must make the same.[6]

[6] F. H. Swift, *op. cit.* pp. 71-73.

What makes these provisions fall short of the full needs of the situation is that they do not apply to all types of junior college districts and that they apply only to students in counties outside the one in which the junior college is maintained. Some may object that this net cost is borne by a local political unit, the county, rather than by the state; but it must be remembered that the latter is already contributing $100 per student plus the annual allotment of $2000, and that it is the net cost less state aid only that is being paid by the county. Nevertheless, there will be those who would be disposed to prefer state subvention to the full amount or almost to the full amount of cost from nonresidents.

Proper basis of distribution of aid not enrolment, but average daily attendance.—The basis of computation of average teaching and other costs presented in earlier sections of the current chapter, it has been explained, were computed on enrolment rather than average daily attendance, the basis usually approved in studies of this sort. It should be apparent without argument that mere enrolment is not an adequate basis upon which to grant state aid per student, and that average attendance is much superior. Using the average attendance as the basis of computing average costs, if it had been possible, would have resulted in figures higher than those found, the difference being determined by the relationship of average attendance to enrolment. As the former is likely to range from 90 per cent of the latter up to within a few per cent of it, the cost per student in average attendance will always be somewhat higher than the cost per student enrolled. The estimated cost of $185 per student as used in the foregoing portions on the average attendance basis would be increased to an amount nearer $200, whereas a high cost of $200 per student enrolled would be increased to something like $210 or $215. It will be well to keep this distinction in mind in efforts to arrive at an equitable basis of state aid.

Some final comments on where to establish junior colleges.—It is probably gratuitous to point out that this consideration of particular communities in the two states represented in the materials of the latter half of the current chapter has not been introduced with the intent of designating with anything of finality the particular systems in connection with which these states should establish junior college units. The aim has on the contrary been primarily more general than this, endeavoring to study the financial problems involved in establishing junior college work in cities of different sizes, with differing high school registrations and financial resources. The facts presented are not, however, without significance for the former problem. But, before a state system of junior colleges is instituted it would be essential to its availability to the young people of the commonwealth that, besides the factors so far recognized, the important question of geographic distribution of the units to serve best the whole state be kept constantly in mind. They should not be placed so near together as to tend to reduce the number of students

in any unit too far below the desirable minimum. On the other hand, to serve the entire state it might be found necessary to encourage the introduction of the work in a small proportion of districts where the cost per student to the state might turn out relatively high because of the small number enrolled. Such establishment should be very guardedly accomplished, so as to serve the youth of the state as economically as possible. A condition complicating an adequate solution is to be found in those communities in which higher institutions, some public and others private, are already in existence. Their presence cannot be ignored. In several states, this fact will remove from the feasible list a number of communities otherwise desirable localities for junior college establishment.

Doubtless the most significant admonition to be made where state encouragement or establishment is contemplated is to urge scientific rather than "political" location. Subsequent experience has frequently shown the latter type to result too much in mislocation, as is demonstrable for the establishment in certain instances of normal schools or other higher institutions, without regard to sources of student body, etc. Scientific location of junior college units requires that, among other sorts of facts to be assembled and used, are numbers of students likely to be served, their distribution as to being residents or nonresidents of the community of location, transportation facilities, the financial situation in each district being considered, the degree of efficiency and the support of lower schools, etc. Without a thoroughgoing study of the state in these and allied respects before venturing upon a program of junior college establishment a few years of experience might result in more to regret than to commend.

VII. Conclusions

1. As careful an estimate as could be made with the data at hand places the average teaching cost per junior college student enrolled at $125. This assumes a minimum enrolment of approximately 200 and salaries comparing favorably with those of teachers giving instruction on the same level in standard colleges.

2. When the proper proportion of all other items of cost chargeable to the junior college are introduced, including other instructional, general control, operation, maintenance, fixed charges, auxiliary agencies, and annual cost of plant replacement, the average annual cost per student enrolled mounts to something like $185. It might even rise to $200. If the basis of computation is the average attendance, a basis upon which to make grants of aid which is preferable to enrolment, the lower of these two figures would be increased to approximately $200, while the higher would rise to something like $210 or $215.

3. The curricular distribution of students in higher institutions indicates that care must be exercised in providing the special preprofessional curricula

or freshman and sophomore college years of professional curricula where these begin with the first college year, if this is to be accomplished without adding unduly to the average annual cost. In junior college units as small as the desirable minimum student body only the addition of the most frequently elected of such curricula will be economically justifiable, while larger units can provide all or nearly all lines of work. A state system of junior colleges can and should, if properly administered, care for all the needs of this sort represented in any large student registration on this level.

4. A study of the additional burden of taxation that would be imposed by the maintenance of a junior college unit with a minimum enrolment of 200 students shows that the smaller the community, the more nearly prohibitive the increase. Even when it is assumed that the state will carry the full burden of cost for all nonresidents necessary to provide the minimum desirable student body of 200, the addition to the local tax rate for schools and to the per capita cost is relatively higher in the smaller cities. These are vital elements to consider in the endeavor to provide the opportunities of education on this level as economically to the state as possible, and to as large a proportion of the population as can be. While in most states it might be necessary to establish a few junior college units in districts with meager sources of students and financial resources, the policy should be one as far as possible of avoidance of such situations.

5. To aid in the support of junior colleges in the proportion only that lower schools are being aided could not be regarded as a generous policy of encouragement, especially if it is borne in mind that the state is now paying most of the cost of providing education on this level to students fortunate enough to be able to attend the state university. Logic seems to point toward providing junior college education, which is essentially secondary in character, free of tuition to the student, and this, with what has already been said, argues for state aid to the community maintaining the junior college (a) for residents, in something like the proportion that the state directly or indirectly is carrying the cost in its higher institutions now operating on this level, and (b) for nonresidents, in practically the full amount of annual cost per student.

6. The policy of generous state encouragement, carrying with it the inference of a state system of junior college units, should be carried out with as high a degree of economy and efficiency to the state and its youth as possible, and this requires the use of a scientific procedure in establishment, in preference to the log-rolling tactics too frequently used by legislatures in distributing what are looked upon as community benefits.

CHAPTER XL

JUNIOR COLLEGE STANDARDS AND OTHER ADMINISTRATIVE PROBLEMS

I. A Critique of Junior College Standards

The procedure.—No study of the junior college movement could be regarded as complete unless it directed some attention to the problem of standards for the new unit. The consideration here to be accorded them is that of presenting the results of an analysis of a number of sets of such standards and accompanying the presentation by a parallel comparison of the situation with respect to them of a number of junior colleges visited by the writer.

The analysis included 11 different sets of standards being applied or proposed for application by state authorities, state universities, the North Central Association of Colleges and Secondary Schools, and a committee on standards of the American Council of Education.[1] For the purposes of this analysis no distinction was made among "shalls," "shoulds," "desirables," and "recommendeds," although it is to be admitted that these bear a vital relationship to the acceptability of any standard in question. The institutions represented in the comparison include 26 public and 12 private units. Only institutions recognized by some standardizing agency have been included, this fact subtracting notably from the number of private junior colleges here represented.

It should be made clear at the outset that the problem of evaluating either the standards or the situation in the junior colleges is not one solely of judging whether or not the latter are in a position to give satisfactorily the first two years of college and university work, however important this function of the new unit may be. The foregoing study has shown that there are many other important valid special purposes, and that to look upon this new unit as a mere isthmus—"a narrow neck of land between two larger bodies of land"—is to remove most of the justification of its extended establishment. These standards must also be judged by their relationship to accelerating or retarding the achievement of this large number of additional special purposes.

Admission requirements.—The importance of this phase of standardization of junior colleges is shown in the fact that all sets of standards say something in regard to it. The most common type of statement is that admission to the junior college be the same as to the institution formulating the standard or "to standard colleges of this association." This is usually (1) graduation from high school with inclusion in the work taken in the

[1] The standards proposed by the agency last named are to be found in Appendix B.

lower unit of certain amounts in certain fields, or (2) the offering of a minimum number of acceptable units, graduation not being specified. In the latter case the number of units is usually 15. In a very few instances, standards which prescribe high school graduation for admission to the junior college also allow for admission to junior college courses of students not high school graduates who have 14 or 15 units and meet the prerequisites of those courses.

In practice public junior colleges almost universally prescribe high school graduation for admission, at the same time setting up total requirements of 15 and 16 units (16 and 8 institutions, respectively). In addition, the predominant practice is not to admit with conditions. At the same time a few of these public units admit to junior college courses high school students who have the prerequisites to these courses and who have earned as many as 14 units. Private junior colleges, almost always having 15 units as their standard requirements, rather frequently admit on condition (usually for students with 13 units), and such a practice just mentioned as being followed in public junior colleges is, therefore, not pertinent.

It seems to the writer that the practice seen to be occasional in public junior colleges, and approved in a few instances by the standards, of admitting high school students with 14 or 15 units to their credit to college courses for which they have prerequisites and assuming that they remain classified as high school students until they have the necessary credits for high school graduation is to be preferred to the plan of conditional entrance which often classifies the student as a college student before he has won the right to such classification. The practice is, moreover, desirable in the present state of development of junior colleges in order to achieve a better articulation of the two units as now administered, at the same time making it possible for the student to progress consistently in his school career. For the student going on who enters upon his last year of high school work with 14 or 15 units to his credit, it is unfair to prevent registration for a part of his work in junior college courses, especially if the higher institution to which he goes after junior college graduation allows no advanced standing for high school credit in excess of 16 units, as is sometimes the case. Such a modification of prevalent standards also has the merit of being forward looking, since there must naturally come to be less of rigidity in making up student schedules from work on the levels represented by these two years of the system, the twelfth and thirteenth, when we achieve the four-four organization of secondary education predicted in Chapter XXXVII.

The writer would not be understood to favor a practice analogous to that in many high schools and even colleges today of permitting the making up of student schedules almost indiscriminately from work on all levels. It is high time that such a practice be displaced by a better standardization of

year location of secondary school and college courses. Nevertheless, no one will be found to object to permitting students not more than a year apart in classification in a four-year unit in the system to pursue some of the same courses. For the present, any untoward influences can be prevented by hedging about such a practice as is proposed by a special requirement in the statement of the standard that high school students to whom the privilege of registering for college courses be opened up shall have earned in work previously taken some average grade (also to be stated in the standard) or a rank in scholarship that places him in, say the upper half or third of his class. A requirement of this sort will prevent the admission of students to junior college courses from operating as drags upon the class, while at the same time facilitating the progress of most students for whom such a modification of standards is desirable.

The following standard in those presumed to be applied to junior colleges by a state university deserves special attention:

> The admission of high-school students to junior-college classes should be limited to students of senior standing and of superior scholarship, "superior scholarship" being interpreted to mean a rank within the first third of the class. The number of even these picked high-school seniors in any junior-college class should not in any case exceed one-half of the total membership of that class and should ordinarily be limited to one-third the total membership of the class.[2]

This standard has an eye single to the performance of the isthmian purpose of the junior college and ignores entirely the desirability of achieving a number of other purposes certainly no less significant, as may be seen by hasty reference to Chapter XXXVII. If we may judge from the distribution of Army Test scores obtained by freshmen in the institution encouraging the application of this standard, as well as in other state universities of the Middle West, when these are compared with distributions of scores of seniors in high schools of the same region, this university is asking the junior colleges to put in operation a standard which she does not apply to her own student body.

A standard related to admission is one found in five of the statements analyzed, the requirement that the preparatory unit connected with any junior college also be an accredited institution. This standard is met by all the public and private junior colleges represented in the group being used for illustration. It is so much a matter of course that exception cannot be taken to it.

The curriculum.—Eight of the sets of standards include statements touching in some way on the offerings to be made available in junior college units. Seven, after one manner or another, urge the junior colleges to give courses in a minimum number of "subjects" or "departments," a

[2] Quoted from a mimeographed copy of the standards applied by the University of Illinois supplied to the writer by the United States Bureau of Education.

majority going as far as naming the fields, although, of course, allowing some latitude. Four prescribe that the course be two years in length, one setting up a minimum of only a single year of work. All junior colleges represented in this chapter qualified on these standards, except that three of the public institutions offered at the time of visitation but a single year of work. Two of these have since added the second year.

If exception were to be taken to standards bearing on the curriculum, it would concern the meager minimum range of work insisted upon. In the light of what is recommended as a desirable offering in the concluding portions of Chapter III, the typical offering should be much more generous. The restricted range can be justified only in the earliest stages of the movement. There are grounds for urging something in the way of progressive standards that would bring about the extension of the offering until a more generous minimum is attained by the time a junior college has been in operation a stated number of years.

The faculty.—Seven of the 11 statements of standards include references to the number of members there should be on the junior college staff. Three of those indicating a specific minimum urge at least 5 instructors, and a single institution asks for 4. Others insist that there be a "sufficient number," that the number "must be considered," or "should be increased with the development of varied curricula." All but a single statement include reference to a minimum *extent of training,* which according to almost all standards should be a year of graduate study, usually in a recognized university graduate school. One insists upon the Master's degree rather than the typical year of graduate study required to obtain it, while another states merely that the extent of training "must be considered." Of those who ask for a year of graduate study one requires that the standard apply to a half, another to three fourths of the faculty, while still another urges that after meeting the minimum standard the instructors proceed in the direction of the doctorate. All but one of the sets of standards make mention of the size of the *teaching schedule.* The maximum teaching load set up ranges from 15 hours in one statement to 20 hours at the other extreme. Standards given in terms of junior college instruction only range from 15 to 18 hours, while those assuming part time in high school instruction allow up to 20, and, even, in one instance, 22 hours or "recitations." In point of fact, 6 sets of standards place the limit at 20. It is significant that a majority of these standards accept the necessity, even though they may not admit the desirability, of part-time instruction in the high school below. At the same time one of the higher institutions represented insists that junior college instructors hold certificates valid for high school teaching. Three only of the standardizing agencies have legislated in the matter of *salary,* one setting up a minimum of $1200, the two remaining not speaking in terms of

definite amounts, merely making clear the importance of adequate remuneration.

All junior colleges visited by the writer which offered two years of work and which were enjoying any extent of recognition by higher institutions would have met a requirement of a minimum of five instructors. The only units that can justifiably plead for the application of a lower standard would be those offering but a single year of work and desiring to be permitted to operate for a year or two on this basis until they have gained the momentum necessary to warrant the giving of second year work. The facts of Chapter XII indicate that three fourths of the instructors in public junior colleges would meet a standard requiring at least a year of graduate work. They show also that the teaching load of about the same proportion of those who give instruction in junior college years only would qualify on the fifteen-hour standard, the lowest amount of teaching proposed as a maximum schedule. The facts concerning salaries presented in the same chapter make evident that there is little if any occasion for concern that the public junior college at least would not be in a position to qualify on a reasonable minimum salary standard approximating average salaries in other higher institutions, if it were deemed imperative to establish one.

Desirable lines for the erection of additional standards in the light of the facts of this report are in the minimum extent of *preparation in the subjects taught* and in the matter of work in the special field of education. A requirement merely of a year of graduate work does not assure adequate scholastic foundation for teaching work in special fields, and there has been a tendency to assume that it signifies a year of graduate training in the field being taught. The needs of the teaching situation also urge a requirement of some regularly appointed opportunity for the junior college teacher to have considered educational and teaching problems. Minimal standards might well move in the direction of setting up further requirements than those now current along these two lines. Friends of the junior college ought also to admit the desirability of securing ultimately a larger typical amount of graduate residence than now characterizes its teachers, and it seems advisable soon to set up a progressive requirement looking in this direction.

In view of the desirability of ultimately welding the junior college years to other secondary school years below, there should be no standards discouraging teachers on both levels. If materials of certain earlier portions of this report are to be accepted as conclusive, there are grounds for taking a positive, as contrasted with a negative, or even a neutral, attitude toward this practice.

Standards of work in junior colleges.—The statements of standards examined reflect what seems to be an almost profound anxiety concerning the standards of work that are likely to obtain in junior colleges. Illustrative of regulations emanating from this concern are the following: One

statement urges, "The junior-college course should be organized and conducted on a collegiate as distinguished from a high-school basis" and another emphasizes "the necessity for distinguishing between high-school instruction and college instruction." A total of eight of the eleven formulations of standards approach the problem of achieving a proper quality of work in this manner or in some way closely allied.

Anyone who discusses with representatives of the standard college or university, be they administrators or teachers, the problems of the junior college will early be struck by the frequency of recurrence in the conversations of this misgiving concerning the quality of work done in the new unit. It appears at times as if those most dogmatic in their skepticism or condemnation of the movement on this score are those who have had least contact with the new unit. In no small part this feeling and the statements of standards referred to are due to the chronic disparagement of secondary school work in collegiate circles and the belief that college courses given in any sort of association with high school work must be contaminated by the inferior standards of the lower unit.

This kind of disparagement is not far from characteristic of those working in any higher unit in the system toward what is done in a lower school, whether the higher unit be college, high school, or elementary school. To this extent the attitude is merely traditional and is not to be taken too seriously, except as it tends to obstruct the growth of a desirable new movement. There are temporary grounds, nevertheless, for insisting that satisfactory qualitative and quantitative standards of work be maintained in junior college classes, and that, to some extent at least, the level of work in them be not confused with those of the lower years of the high school, or even with those of its upper years as standards obtain in many high schools. This admission should not be entertained, however, without a simultaneous acknowledgment that standards of work in junior college years of approved four-year colleges and universities are not universally all that can be desired. The materials of Chapter XIII are pertinent in this connection. After much visitation of work in the several types of institutions the writer is in a position to cite instances of class work in standard higher institutions falling to a level of performance just as low as any he has ever seen in the upper years of accredited secondary schools. Thus, college standards of work are not inviolable in the colleges themselves or are wide enough in range from the lowest to the highest to overlap generously on those of the high school below, which also, as admitted, range widely. In this discussion we should not lose sight of the fact that work in junior colleges is typically, and, therefore, can be, pitched on just as high a level as corresponding work in other higher institutions.

We are warranted in anticipating that the problem of adequate standards of work on the junior college level will tend in part to be automatically

solved in the logical organization of secondary education proposed in the first chapter of Part V—an organization which places the last two high school years in the same unit with the junior college years. This division of the conventional four-year high school will effect dissociation of upper and lower years at the same time that it will influence favorably the standard of work in the upper years by their association with standards in junior college years. Pending this eventuation it is necessary, as admitted, to include some such statement, indefinite as it is, in any formulation of junior college standards for whatever encouragement of effective work it can afford. It will obviously be much more influential to particularize this standard by setting up qualitative and quantitative criteria for each of the subjects and courses taught, for which colleges and universities are asked to grant advanced standing. Incidentally the achievement of a real difference in the levels of student performance between junior college and upper high school years will assist during the first years in "selling" the junior college to the community of location, since some of the residents who should be its friends also have at first the traditional misgivings about doing "real college work" in a collegiate unit associated with the high school.

Similar lines of thought argue a temporary and partial separation of high school and junior college student bodies, even though, as is almost the universal practice, the two are housed under the same roof. Such a separation is, in fact, being achieved in the great majority of units, among the means used being separate study rooms, classrooms, schedules, differentiation of disciplinary control by allowing greater freedom to junior college students not unlike that given to students in four-year colleges, etc. Some junior colleges have provided partially separate accommodations, so that junior college students come to look upon a certain building unit or portion of a building as their institutional home. The note of warning to be sounded in this connection is against the provision in architectural plans for a type of separation that will tend to obstruct the ultimate amalgamation of the junior college unit with the two years of high school work immediately below. Efforts at separation at the point of present high school graduation should be regarded as temporary only.

With the few exceptions noted in discussing the standards of admission above there is complete separation of high school and junior college students as far as their registration for courses is concerned. Those who formulated these and other junior college criteria and those who have subsequently applied them have left no doubt of their intent in this way to prevent a confusion of standards of high school and college work. One statement goes so far as to say that "students registered in a junior-college class in which there are enrolled high-school students shall not be given full junior-college credit for such work, and in no case shall the credit thus given exceed two-thirds of the usual college credit." Standards of separation are doubtless wholesomely influential in the present state of development of junior

colleges, but should, as was suggested in discussing the standard of admission, be modified to accommodate any prospective needs of the six-four-four reorganization of education as this comes to be effected. At the same time the new senior high school unit should not be allowed the same freedom in this regard as is taken in four-year high schools and colleges today in which students in any year of their course take any subject in the entire program and in which there is too common a tendency for freshmen, sophomores, juniors, and seniors to be registered for the same courses. If evidence of this extent of freedom is desired, the reader has only to refer to some of the chapters of Part IV in which the predominant classification of students in certain college courses is reported. There could hardly be more confusion of standards in admitting students in twelfth and thirteenth grades, i.e., high school seniors and college freshmen, to the same course in higher algebra or beginning foreign language than to admitting students classified anywhere from the thirteenth through sixteenth grades, i.e., college freshmen to college seniors, to the same course in American history. With the realization of a senior high school including the eleventh through fourteenth grades, standards should come to be so reformulated as to permit the latitude illustrated.

The task of particularizing standards for college courses is no easy one, but this fact should not prevent serious and persistent effort in this direction. We ought certainly to move beyond mere pious wishes that "the junior-college course . . . be organized and conducted on a collegiate as distinguished from a high-school basis" or that "college methods be used." It should be added that a few formulations of standards have gone farther by adding statements like the following: "College texts should be used and should be supplemented with reference or other outside work of collegiate character, and the amount of ground covered in a semester should approximate that covered in corresponding college courses." A few standardizing agencies also have assisted the junior college by issuing bulletins in which the several college courses are described in some detail, including lists of available references, apparatus, etc.

Here again it is pertinent to refer to the chapters of Part IV in which the effort was made to ascertain such differences as exist between high school and college courses in the same subjects. The essential recurring distinctions found are *quantitative;* they concern the amount of ground covered by the student during the course or in connection with a clock hour of instruction in the course. Particularization of standards along this line at least should be accomplished. Certain other differences in the *character* of the content of the several courses were also established, although these are usually less notable than the quantitative distinctions. In any formulation of standards for particular junior college courses these could be utilized, although they are in need of supplementation from other sources.

The chief difference in *methods* used as shown in the same chapters seems to be the larger extent of use of the lecture in college courses in certain fields like English literature and history, and the question is raised as to the desirability of such a distinction in view of the similarity in age of students in the last high school and earlier college years. If this type of procedure is inappropriate as the predominant type to be used with the former, as is generally conceded, it can hardly be less suited to the needs of students on the junior college level. If space permitted, the writer could cite some pitiable examples of overusing the lecture mode of presentation in junior college classes where methods used in other higher institutions are sometimes indiscriminatingly imitated. Instances no less to be deplored were also observed on the same level in these other higher institutions. If there are to be distinctions in methods of class procedure in junior college as contrasted with high school instruction, there is need of particularization here, just as in the matter of scope and character of content.

Other standards to safeguard the character of the work.—Eight of the statements in one way or another urge restrictions upon the *amount of work* to be taken at any one time by the student. In most instances this is accomplished by an unequivocal direction that students be not permitted to carry more than 16 hours (exclusive of physical education). In a few cases other types of restriction are placed, such as limiting the total amount of credit granted by the higher institution to 60 semester hours, 18 hours for any single semester, etc. Inquiry discovers the fact that the typical amount of work actually taken by junior college students is 15 or 16 hours, but that larger amounts are sometimes permitted. More commonly the maximum amount taken—and this by a small proportion of students—is 18 hours, although a small proportion of schools have occasional students carrying as much as 19 or 20 hours. Almost universally the taking of more than the typical amount of work must be approved in advance by the dean, principal, or a faculty committee, or by full faculty action.

It seems desirable to include in any complete set of standards one which locates the typical amount of college work to be taken at 15 or 16 hours. At the same time it should be sufficiently elastic to make it possible to permit a small proportion of students of demonstrated superior capacity and ability to carry as much as 18 to 20 hours. To restrict such students to 15- or 16-hour schedules is to encourage a waste of time, no matter whether this practice is followed in the junior college or in the college or university. It should not be impossible to state this standard in such a way as to allow for occasional exceptions while insisting that almost all students be restricted to the amount of work here indicated as typical.

Three of the sets of standards make thirty students the *maximum approvable size of class section.* The figures on total enrolments given in Table III of Chapter I, showing as they do the small junior college unit

as the prevailing type, and those on size of classes given in Table LXII of Chapter X, discover no notable tendency to violate such a standard. On the other hand, the latter table shows that colleges and universities are themselves frequently guilty of such infractions. As junior colleges develop into sizable units, a change to be hoped for, they will more often feel pressed to follow the example set. Until we know more about the relation of the size of class to the effectiveness of work done, and in anticipation of the present rapid growth of many junior college units, it will be desirable for a complete statement of standards to have some regard for this aspect of junior college administration.

Another type of consideration sometimes finding formulation as a standard is the *total junior college enrolment* in any institution. It is variously stated, since in one instance the minimum set is 15 students; in another it is 20; in a third it is 15 if a single year of work is given and 25 if two years; in one of the two highest (1) it is 25 if a single year, and 50 if two years; and in the other (2) it is 50 in both years. In a sixth statement it is insisted that the college be the essential part of the curriculum of any institution recognized as a junior college. Presumably standards of this sort are aimed at assuring a student body sufficiently large to make the unit worth while on its own account and in order to give the work something like dignity in the eyes of students and others. They may also have been urged by the desire to obviate classes altogether devoid of emulation because of their small size.

The figures of Table III again afford evidence that only a small proportion of junior colleges would fail to comply with the lowest of these standards, although a larger number would be disqualified if the highest ones were applied. In view of the tentative typical minima of 150 liberal arts students and 200 students where other lines of work are to be provided—minima proposed on the grounds of financial economy, an adequate educational offering, and a desirable extent of specialization on the part of instructors—the standards cited will be seen to be generous indeed. While the writer urges serious consideration of these larger figures in any plans to establish a state system of junior colleges, he is not at all disposed to argue for their immediate application to the approval of units, since junior college enrolments, even when established in communities where these numbers of students are certain later to come, will not jump from nothing to the desirable figures at once. This fact should not preclude, however, setting up standards for public junior colleges formulated in terms of minimal populations or, better still, of high school enrolments in the communities of proposed establishment. We have enough information and experience now, certainly, to warrant us in discouraging the establishment of the junior college plan in small districts, villages, or cities from which a majority of a desirable minimum enrolment cannot be ultimately recruited. It seems feasible at least to

specify some such standard as this, accompanied by a requirement that something like the highest of the numerical standards cited, i.e., 25 students in the freshman college year or 50 in both years, be achieved during the first years of existence, with something in the way of progressing standards during the earlier years, so that by the end of the period an approach to an adequate minimum will be attained.

Reference should be made to the ineptitude of the last standard cited above, that which insists that the college must be the essential part of the curriculum of any institution recognized as a junior college. This formulation seems intended to discourage the establishment of junior college work in connection with high schools where the total amount of instruction in the latter will exceed that in junior college years. It is to be noted that such a standard puts a premium on private junior colleges in which high school work has or is being atrophied, thus encouraging the junior college as a distinct two-year unit. At the same time it places a penalty upon the public type which is almost universally associated with strong high schools and, if applied to them, would prevent the performance of the last two special purposes of the junior college as accepted in the chapter dealing with the evaluation of types, viz., fostering the inevitable reorganization of the school system and bringing together into a single institution all work essentially similar to effect better organization of courses and obviate wasteful duplication. It does not appear that the same end of safeguarding college standards of work, which is doubtless the intent of this standard, cannot be accomplished by reorganization along the lines there suggested by associating in a single unit the first two college and the last two years of the conventional high school.

The material aspects.—Library facilities are given attention in all the 11 statements of standards analyzed. It is usually insisted that these be "adequate" or "sufficient" for the college work offered. Only 2 statements refer to minimum expenditures, 2 to minimum numbers of books, and 1 to the need of a card catalogue.

All statements of standards also refer to *laboratory facilities* and the criteria are usually just as indefinite as in the case of the library, i.e., it is indicated that there should be at hand "adequate" equipment for all college courses given. In two instances minimum amounts to be expended for laboratory equipment are stated.

Although the writer did not find it convenient to have inventories made of library and laboratory facilities in the junior colleges visited, he made it a point to examine into them sufficiently to warrant an estimate of their adequacy. For 26 public junior colleges visited whose work is accepted by standard higher institutions he has notes on 21 which indicate that the library facilities of 8 were only "fair," of 7 were "good," and of 6 were "very good" or "excellent." All but 2 were equipped with card catalogues,

and most of them had trained librarians. More commonly the libraries were those maintained also for the high school with which the junior college was associated, although there were several exceptions. Of the libraries of 11 accredited private junior colleges visited 5 were noted as "poor," 1 as "fair," and 5 as "good." Nine had card catalogues, although 1 did not follow a standard classification, while 6 did not have trained librarians.

Observations recorded indicate that for 24 accredited public junior colleges 1 only was without a laboratory for chemistry, 8 without laboratories for biology, and 9 without laboratories for physics. Of the 23 chemical laboratories, 3 were estimated as "fair," 17 as "good," and 3 as "very good" for the courses given. Of the 16 biological laboratories, 1 was "fair," 12 were "good," and 3 were "very good." Of the 15 physical laboratories, 3 were only "fair," 10 were "good," and 2 were "very good." Thus, of the 54 laboratories in these 3 main lines in 24 public junior colleges 7 were "fair," 39 were "good," and 8 were "very good." This makes almost 90 per cent "good" or better.

In the 11 accredited private junior colleges visited on which similar observations were made there were 11 laboratories for chemistry, the same number for biology, and 3 only for physics. Of these 25 laboratories, 14 were judged to be "poor"; 7, "fair"; and 4, "good." This is but 16 per cent judged to be "good."

The most helpful type of statement of standard in these two important respects seems to be those more commonly made, that facilities should be at hand for the adequate presentation of the courses offered. It seems desirable, however, to accompany the set of standards by more extended descriptions and lists of books and other materials regarded as essential to the proper conduct of the courses concerned, descriptions and lists that are in the nature of a particularization of standards for each special field or course. At least two standardizing agencies, the universities of California and Missouri, have essayed such descriptions in detail.

Two statements of standards urge that the *location and construction of the building, the lighting, heating, and ventilation of the rooms, the nature of the laboratories, corridors, closets, water supply, school furniture, apparatus, and methods of cleaning* be such as to insure hygienic conditions for both students and teacher. No exception can be taken to the inclusion of such a standard, unless it be that here also there should be more in the direction of particularization.

The writer passed judgment on the *general adequacy* of the plants (including equipment) in use by the junior colleges represented in this chapter. On *instructional facilities* only the distribution of judgments for public junior colleges was "fair," 4; "good," 7; and "very good," 15; while for private junior colleges it was "poor," 4; "fair," 3; "good," 4; and "very good," 1. In the matter of *housing of students,* however, a respect in which

no judgment is to be passed in the case of public units because such facilities are not provided, private junior colleges were classified as follows: "fair," 3; "good," 4; "very good," or "excellent," 5. Student-housing tends, therefore, to be superior to instructional facilities in these private units.

There is only occasional reference in the standards to the *resources* necessary to maintain a junior college. When mentioned it is usually done in very general terms. Only a single set, that recommended to the American Council on Education, insists upon a "minimum annual operating income for the two years of junior-college work . . . [of] $20,000, of which not less than $5,000 should be derived from stable sources other than students, such as public support or permanent endowments."[3] In the light of present tendencies to establish and apply standards of this sort—but, of course, much higher and more exacting—in other higher institutions, it does not seem unreasonable to take some steps in this direction with respect to junior colleges.

The system of records.—It is surprising that not one of the 11 statements of standards makes any reference to the need of a suitable system of records. While only a detail, it is one of some importance into which those who inspect junior colleges should be encouraged to inquire. The writer examined the forms in use in 20 of the 26 accredited public institutions visited and was disposed to class those in 12 as satisfactory and those in 8 as unsatisfactory. Similar inquiry in 9 accredited private units found 7 satisfactory and 2 unsatisfactory. "Unsatisfactory" as here used often includes recording facilities at least in part suited to junior college purposes. In the present state of conception of junior colleges as partially separate from schools below, these record forms should provide at least for the full admission record of the junior college student and a complete and accurate record of his junior college work. There is little excuse for inadequate records along these lines, since samples worthy of copying can be secured from any first-class college or university, and since the cost of having a supply printed is small when compared with other junior college expenditures. Record forms for other purposes found necessary as junior colleges grow are also easily devised and relatively inexpensive.

Graduation, titles, and degrees.—Two of the sets of standards examined insist upon the requirement of 60 semester hours of work for *graduation* from junior colleges. Of the public and private junior colleges visited not one among those giving two years of work and recognizing its termination by graduation does so when the student has completed less than this amount of work. Of the 24 accredited public junior colleges visited in which inquiry was made concerning graduation, 3 reported following no such procedure because of offering only a year of work, 3 reported 2 years of work but

[3] See Appendix B.

no graduation, while 18 provided some such recognition upon the completion of the prescribed 60 hours of work (in many cases with the addition of physical education). Of these 18, all but 3 issue some sort of certificate or diploma. Seven of the 18 prescribe an honor point requirement in addition to the bare completion of the minimum number of hours of credit, 9 follow no such plan, while the 2 remaining provide for graduation on both bases. Of the 12 accredited private units visited all provide for graduation with a diploma or certificate upon the completion of at least 60 hours of work, 10 have in operation no honor point basis, while one of the two remaining schools has such a requirement, the other one insisting that the student have not more than 20 per cent of D marks.

Occasionally those who formulate standards put a ban on the *granting of degrees* by junior colleges. This is a wise restriction, especially as this granting of the Bachelor's degree seems to be hard for some weaker colleges which are transmuted into junior units to forego. However, it must be said that the writer found but a single junior college still presumptuous enough to grant this degree and in this institution action had been taken to discontinue the practice with the school year 1921-22. All the eleven remaining private schools confer the "title" of associate in arts at the time of graduation, while six only of the public units visited confer such a title. In these instances it is usually the associate in arts, although occasionally the title is designated as associate in commerce or associate in science. Private institutions follow this practice in larger proportions than public because most of them having formerly conferred the Bachelor's degree do not as readily relinquish hold upon all semblances of degree-granting colleges. Their clientele would be disposed still to desire something like degrees on the completion of the curriculum.

Although it does not seem necessary for the agencies formulating standards for junior colleges to legislate in favor of recognitions like the granting of a diploma or certificate upon the completion of two years of work in advance of high school graduation, it seems to the writer desirable that the junior colleges themselves follow such a practice. This should be done at least for the reason that, as pointed out in discussing the European analogy in Chapter XXV, the termination of the second college year seems to be increasingly and logically the end of the period of general education.

The question of whether or not an honor point requirement should be made of all who are graduated from the junior college should be answered in terms of the full scope of function of the institution. If this function were to be solely the isthmian one of giving the first two years of work for those who plan to continue, the selective necessities of the situation would recommend such a requirement. In the light of the desirability of caring also for those who cannot or should not go on to higher levels of training, the application for graduation from the junior college of the prescription

of an honor point scheme to all students does not seem appropriate. It does not appear beyond reason, however, to use something after the manner of an honor point system to distinguish between those graduates who should, and who should not, proceed to the higher levels, thereby utilizing it as a handmaiden to educational and vocational guidance, a function which, although it should be performed for the most part on secondary school levels below, is still pertinent to the last two years of general education.

The question of whether or not the junior college should confer upon graduates titles like that of associate in arts is much more nearly open to debate, although it cannot be one of serious moment. Authorities in certain junior colleges, especially public units, regard title-granting as largely an ornamental and superfluous characteristic of educational institutions and are inclined to refer to it as one sort of presumption and an unjustifiable aping of four-year colleges and universities. Others point out that in time the second junior college year will become the terminus of the period of reorganized secondary education and that completion by the student of the extended unit is deserving of something more than a certificate. One junior college administrator referred to the fact that the French lycée confers the baccalaureate upon its graduates and that the new American secondary school, although having such a practice proscribed to it by our conventional requirement of sixteen years of work for the Bachelor's degree, should give completion of its extended program something approaching a dignified recognition.

Miscellaneous standards.—It is only occasionally that one comes across standards that deal with other aspects of the junior college problem. Three referred to once only in the eleven statements analyzed for the purposes of this chapter concern the length of class period, the length of the school year, and the use of the word "junior" in connection with the name of junior college units. The length of period insisted upon in the sole reference to it is sixty minutes. Whether or not junior colleges qualify on this standard will be indicated in the concluding section. The single instance of specification of a minimal length of school year is thirty-six weeks. Although the writer came across few instances of infractions of such a standard, it seems desirable that there be a statement in every complete formulation of junior college criteria that will assure a school year of at least the same length as in standard four-year colleges and universities.

One statement urges the use of the word "junior" in the names of all such units. This is in a state in which there were at the time of formulation junior colleges under private control only and the statement may have been included on the request of authorities of four-year colleges who feared some extent of recruitment of students for junior colleges under false pretenses. As concerns private units there are some grounds for urging such a practice, but if we think in terms of public units only and keep in mind that

these two college years are almost certain in time to be welded indistinguishably upon the high school years below, there is some reason to believe, although with nothing like certainty, that the new upper secondary school unit will come to bear the name "senior high school," just as does its prototype in the six-three-three organization of education. However, at the present time these two years of work in public school systems universally bear this name "junior college," and it will be desirable during the early years of reorganization for them to do so.

The imperativeness of forward-looking formulations and applications of standards.—In bringing to a conclusion this critique of junior college standards it is desirable to point out once again the great need of formulating and applying standards for junior colleges in a forward-looking manner, that is, in a manner designed to favor rather than to obstruct the impending reorganization of American education. This can be accomplished by those concerned if they will constantly bear in mind the full scope of function of the junior college as accepted in Chapter XXXVII, which, as has frequently been reiterated in this report, is much broader than merely providing the first two years of a four-year college course, and includes such important special purposes as rounding out the education of those who cannot or should not go on, developing lines of semiprofessional training, popularizing higher education, fostering the inevitable reorganization of the school system, bringing together into a single institution all work essentially similar to encourage better organization of courses and to obviate wasteful duplication, etc. A forward-looking formulation and application of standards will, to cite once more a few instances of modification of current tendencies suggested in discussing standards at earlier points in the current chapter, be inclined to encourage admission to junior college courses of non-high school graduates who have fourteen or fifteen units of acceptable work, who have all necessary prerequisites for such courses, and who have demonstrated through superior capacity, ability, and application that they will not operate as drags upon the junior college classes in question; they will not tend to discourage attendance upon junior college courses and curricula suited to their present and future needs of high school graduates whose capacities and abilities warrant continuing their education beyond the high school level but not beyond the junior college level; they will not urge such rigid separation of junior college and high school years that a tradition of separation will be erected that will tend to obstruct the ultimate and logical unification of all work on upper high school and lower college levels. At the same time it will be necessary to bear in mind—and this is probably a gratuitous warning—that there should be no concessions in the direction of lowering collegiate standards of work, certainly not for those who can and should proceed to higher levels. These standards can be safeguarded by an adequate particularization for each college and university course given, as has

been urged, and by frequent careful supervisory contact by the standardizing agencies with the work going forward, especially during the early stages of development of a junior college unit. Assurance of satisfactory levels of work will also to some extent be assured by a progressive type of statement of standards, i.e., by a statement in which minima are gradually raised toward adequate stages as the movement grows or as each junior college unit in question continues its existence, through a given period of years. Lines along which such progressive statements of standards seem especially applicable are in the extent of graduate training of members of the teaching staff, both when measured by the total period of residence and special training in the subjects taught, the total range of work offered, and the minimum junior college registration. The initial stages set in these standards should not be lower than those now to be found in typical formulations and being typically applied.

Who will inspect the junior colleges?—The question may be raised as to in whom or in what agencies the functions of determination and application of junior college standards are to be appropriately vested? There is no reason to believe that for the immediate future they should not continue to rest where they now are, in the university of the state of location and in the voluntary regional organizations such as the North Central Association of Colleges and Secondary Schools. For some time to come it will be desirable to entrust the major portion of the responsibility of supervision of junior college units to those who have had experience in administering work on this level which is at least traditionally collegiate. The question may well be raised, however, whether, in view of the impending reorganization of education of which the facts of this investigation make us aware, these functions should properly remain with the state higher institutions. If the conclusions drawn are correct and the reorganization predicted comes to pass, the junior college years will be in time merely the last years of the new secondary school.

During the past few decades there has been a rapid shift of responsibility in matters of inspection and supervision of high schools from the state university to state departments or state boards of education, the underlying motive of the transfer being the belief that the latter should be more disposed to conceive of the high school in its full range of function in providing appropriate education not only for those who will attend college but also those who will not, while the former may be more inclined to focus attention upon the preparatory function and thereby obstruct the service to that portion of the high school population not going on. While the high school was almost exclusively a college preparatory institution, university control of inspection was appropriate. A similar motive argues for, in time, an analogous shift of inspectional responsibility touching the junior college from state higher institutions to state departments of education. As with

the high schools, the shift is likely to come first for public and subsequently for private units.

The writer is not disposed to condemn all university supervision of secondary schools. He is aware that some of it in the past has been as constructive and broad visioned as that which has characterized some of the state departments. He refers merely to the obvious parallelism of the two situations. It is to be hoped that during the period the universities continue to supervise the junior college work, they will manifest some of the same constructive tendencies which have obtained in the best policies of high school standardization. There can be no doubt that these university policies can hasten or retard almost immeasurably the realization of the ultimate scope and function of junior college work in American schools.

II. Other Administrative Problems

Administrative problems already considered.—It is probably unnecessary to point out that the critique of junior college standards just concluded is teeming with inferences of administrative significance for those who are responsible for leadership in the movement and will guide in the development of systems of junior colleges as well as for those who are to be immediately responsible for the direction of particular junior colleges. In an important sense the principles underlying the formulation and application of any adequate statement of standards afford the policies to be followed in administering an educational unit. The reader having administrative responsibilities in this new educational institution has probably, moreover, recognized during his perusal of most of the foregoing chapters, that, in the canvass of almost every problem dealt with the aim has been not merely to evaluate the movement—the first concern of the investigation—but also to ascertain or recommend appropriate lines of procedure assuming that the junior college has come to stay. These lines of procedure, likewise, will serve as administrative guideposts, both in remoter as well as in more immediate relationships.

Although complete recapitulation of the administrative problems and procedures dealt with directly or by implication in foregoing chapters of the report is neither necessary nor desirable, illustrative mention should at least be attempted. Much guidance in administering the curriculum, for instance, is afforded in chapters having most intimate bearing on this subject, notably Chapters III, IV, VI, and VIII, the titles of which are, respectively, The Junior College and the First Two Years of College Work, The Junior College and Preprofessional Requirements, The Junior College and Mental Democratization of Higher Education, and The Junior College and Training for Semiprofessons. These materials vary, of course, in the extent to which they provide specific directions for appropriate practices, deficien-

cies of this sort being roughly inversely proportional to the extent of experience there has been along any particular line and to the extent of inquiry possible. The basic principles for such practices will usually be found expressed or implied in the materials referred to. Other instances are to be found in the chapters dealing with the problem of attention to the individual student, the extra-curricular activities, the teaching staff and instruction, the problem of location of units, cost problems, etc.

There is no attempt to contend, however, that the report is all-inclusive on administrative aspects. There is still ample room for investigation, more especially of many details of administrative procedure. Examples of unexplored areas of this sort are the equipment requisite for certain subjects or courses, the housing and social control of nonresidents in public junior colleges, the special financial problems of the private junior college, etc. Also, a host of administrative problems attacked in the foregoing chapters merit more extended study than has been made. As with most educational units, the field of the junior college is fairly bristling with questions to which more nearly unequivocal answers than are now available are much to be desired.

Let it be repeated before finally leaving the topic, that the ultimate criteria of practice in administering the junior college, as with any other units in our system of schools, must be the accepted special purposes of the institution. Constant reference to these, as they were worked out in the investigation and as they are summarized in the earlier portions of Chapter XXXVII, is certain to answer many of the puzzling questions likely to arise in directing the affairs of the new unit.

The administrative head of the junior college.—A brief consideration of two additional administrative problems of some moment upon which certain factual materials are at hand will bring the report of this investigation to a close. They are the problems of (1) the location of administrative authority and (2) the daily schedule as it concerns the length of class period.

Practices concerning the location of administrative authority in the 26 public junior colleges concerned at earlier points in the current chapter vary widely. (a) In 10 instances the principal of the high school in association with which the unit is maintained is designated as head of the junior college also and actually assumes the responsibilities of directing it. Although not always assigned an additional administrative title, this is the more common practice. More frequently than otherwise he is made "dean," but in one or two instances is designated as "director" or "president" of the junior college, as well as principal of the high school. (b) In 13 additional instances the principal of the high school is designated or understood to be chief in authority in the unit, but does not assume all directorial or administrative responsibilities. In 10 of these cases another member of the staff is designated as dean and serves in a capacity subordinate to the principal. The 3

remaining practices, all of them different, in this group of 13 are as follows: in the first a "registrar" of the junior college takes over many of the functions of a dean; in the second, the principal performs many important duties of a dean, but depends unofficially on certain faculty leaders in the junior college unit for the performance of the remainder; in the third, there is a junior college committee who severally and through their chairman discharge, under the direction of the principal, many administrative duties. These two large groups, totaling all but 3 of the entire group of 26 units represented, include practices that shade into each other almost imperceptibly, so much so, in fact, that the numerical division here shown may not be fully accurate. In them all, the high school principal is looked upon as the locus of authority, the administrative activities being reassigned in varying degrees ranging from none at all upwards. In no cases, however, did it appear that the principal had relinquished all the administrative authority vested in him, although he appeared sometimes to have delegated most of it. (c) In 2 of the 3 cases not yet accounted for there were junior college heads, one designated as "president" and the other as "dean," who have no administrative officer between them and the superintendent, that is, whose positions are autonomous with reference to any high school principal. One of these is in a large city, the junior college being housed separately and not in association with a high school; the other is in a smaller city, the junior college being housed in the same building with a junior-senior high school organization. Moreover, the superintendent's offices are in the same building with these three educational units, which fact will go far to explain the feasibility of three administrative units, each with an administrative officer, autonomous with respect to the other two in the same school structure. (d) The single remaining junior college is one referred to in an earlier chapter as being maintained as the two upper years in a four-year unit in the first system to operate on the six-four-four plan and the head of which administered the affairs of the entire upper four-year unit, the senior high school of the future in districts in which junior college work is to be maintained.

As the six-four-four organization of education seems to be logical in such districts, some such assignment of administrative and supervisory authority as last referred to seems most appropriate as the predicted reorganization comes to be more generally effected. In the meantime, however, it will usually be desirable in systems where high school and junior college units are maintained in the same plant to center the authority for direction in the high school principal. This should not preclude the provision also of a subordinate junior college dean to whom certain duties pertaining to the new unit are to be assigned, the extent of these duties to depend to some degree upon the magnitude of the principal's other duties in the particular high school situation. During the earlier years of the establishment of

junior college work while it is still being "sold" to the community of location and while it is still associated with the whole four-year range of the conventional high school, it will prove highly beneficial to provide such a special officer to whom students will turn for guidance pertaining to junior college work and with whom they will come to identify the unit. The provision of such a special officer subordinate to the principal will lessen the difficulties of achieving the ultimate reorganization when the time is ripe for bringing it about, when compared with the difficulties that must present themselves in a situation where there are two administrative heads autonomous with respect to each other.

Such a provisional arrangement for junior college administration as is proposed, let it be admitted, requires a high school principal of no ordinary parts. In addition to being generally capable in his profession of directing the affairs on the conventional high school level, he should be possessed of genuine scholarly sympathies and not disposed to be jealous of those of his subordinates who must in the nature of things be assigned significant powers and, as adviser to junior college students, take a position of leadership in this more mature group of the total student body. If the writer had not met such high school principals in the course of his visits to junior colleges he would be disposed to hesitate before recommending such an administrative organization as he feels should characterize the junior college in the first steps of its establishment.

All accredited private junior colleges visited had at their heads presidents in whom administrative authority was focussed. All also had deans, subordinate to the presidents, to whom some of this authority was reassigned. Certain of them had, in addition, responsibilities in the way of registering and recording. There is no occasion to feel that such an organization of administration in private units is not appropriate.

The length of class periods and the adjustment of junior college to high school class schedules.—The large extent to which the length of junior college class periods conforms to the usual college practice is shown in the fact that in twenty-two of the accredited public units visited and in all of the accredited private units visited they extend over fifty to sixty minutes. In the small proportion of instances in which shorter periods are in use the total class time is either equal to, or in excess of, that given to corresponding courses in colleges and universities, any lack through shorter periods being compensated for by increasing their number.

There is considerable variation, however, in the adjustment of junior college to high school schedules as this adjustment concerns the length of class period in the two units. During the visits notation was not made on the length of high school periods in 5 public institutions. No high school is maintained in association with a sixth unit visited. Of the remaining 20 public units, 13 are run on the same program and 7 on a different program from

that of the high school below. Eight of the former group have 60-minute periods, 2 have 45-minute periods, and a single institution has 40-minute periods. One of those following a 70-minute schedule permits teachers of junior college classes to discontinue class work at the end of 55 or 60 minutes.

Of the 7 junior colleges running on schedules independent of the daily programs of the high schools with which they are associated all have 50- to 60-minute periods in the upper unit. In 3 there are 60-minute periods in the junior college and 40-minute periods in the high school; in 2 there are 60-minute periods in the junior college and 45-minute periods in the high school; in a single institution the periods are, respectively, 50 and 40 minutes in length; and in the remaining school they are 60 and 85 minutes in length. In the last instance, there being 4 of the 85-minute high school periods per day, i.e., 2 such in each half day, the junior college program is adjusted to it by beginning the first junior college period of each half day 25 minutes after the opening of the first high school period, closing it with this high school period, opening the second college period with the second high school period and closing this second college period 25 minutes before the termination of the second high school period. This plan as operated gives only 4 junior college periods during the day.

Judged by the criterion of simplification of schedule problems the maintenance of identical programs providing for fifty- to sixty-minute periods in both units seems to be the most satisfactory. At best there is some element of confusion with two programs not coincident in opening and closing of periods in operation in the same building, although the writer has observed some situations in which this confusion is almost negligible. This can be accomplished by providing a system of signals for the high school program only, having the junior college students move about without the guidance of bells or gongs. It is not impossible, on the other hand, to school students in both units to ignore fairly satisfactorily the signals of a program conflicting with that they are expected to follow, although this discipline is not accomplished without perseverance on the part of the teaching staff. The use of independent programs tends also, by complicating the task of schedule-making, to obstruct somewhat the common use of instructors in both high school and junior college units, a practice we have seen to be both necessary and desirable.

Perhaps the chief immediate objections to the introduction of identical schedules using the sixty-minute period are the additional cost of instruction in the high school unit and the need of introducing the plan of directed study there. Extending the class period by as much as fifteen or twenty minutes in any unit involves a reduction in the number of periods cared for by each instructor, which, in turn, increases the number of teachers required for a given student body as well as the unit cost per student recitation.

There are those who are still unconvinced of the merit of a plan of directed study, especially in upper high school years, even if it goes no farther than adding from a third to a half to the typical length of the period. Others are inclined to approve it because it assures a larger amount of systematic preparation on the part of the student than has been characteristic in the more recent high school study situation.

Opportunities for synchronous high school and junior college schedules are not, of course, restricted to the 60-minute period. In view of the universal 5-day week in public junior colleges, whereas colleges and universities are more disposed to follow the 5½-day program, and of the undesirability of having many 2-hour and even 3-hour courses available on the junior college level, there are arguments for 40- to 50-minute periods on identical programs with those of the high school below, if total amounts of class time are equalized by adding to the number of class meetings. Such plans have the objection that standardizing agencies, owing to the 50- to 60-minute tradition in colleges, are less willing to approve them, even though there is no factual evidence at hand to prove that learning processes go forward better under the conditions of the longer period with less frequent meetings than of the shorter period with more frequent class sessions, especially where the length of period for regular class work is actually only 5 to 10 minutes shorter. There is no occasion to believe that the length of class period needs to be essentially different for freshman and sophomore college students than for juniors and seniors in the high school.

The writer would not be understood to contend that there should be no public junior college work without synchronization of the program for it with that of the program of the high school with which it is associated. He merely regards the synchronized programs as preferable. They are so more immediately because they obviate confusion and because they allow greater freedom in assigning teachers to classes on both levels, and more remotely because they will make one less readjustment necessary—not a major one, it must be admitted—in the realization of the ultimate organization of American education.

APPENDICES

APPENDIX A

LISTS OF JUNIOR COLLEGES

(As of 1922)

The following lists resulted from an extended inquiry aimed at obtaining data on as near a full count of junior colleges as possible. The attempts to locate all such institutions were of several sorts. First, state universities and state departments of education were appealed to for lists of junior colleges. Next, published lists of junior colleges were utilized, especially those appearing in McDowell's study[1] and in the *Educational Directory* of the Bureau of Education. Throughout his work of visitation of a third of the junior colleges here listed the investigator made inquiries concerning possible additional junior colleges of which the authorities in those visited might have knowledge. The officers in charge of all junior colleges not visited were requested to supply the names and locations of other junior colleges the existence of which had come to their attention. All clues to the existence of junior colleges thus obtained were followed up by visitation or blanks of inquiry. A third and, in some instances, even a fourth request for information was made. With all the persistence and care exercised, it is certain that there must still be colleges in existence not to be found in the lists below.

These lists do not include institutions offering three or four years of work presumably above high school grade, but credit for only one or two years of which is allowed by some agency like a state university. Only such schools have been included which are announced as junior colleges or whose authorities seemed desirous of having them known as such.

Except for junior colleges reported as established in 1922, the enrolments given are for 1921-22.

[1] *United States Bureau of Education Bulletin*, 1919, No. 35, pp. 108-10.

I. PUBLIC JUNIOR COLLEGES

City and State of Location	Name of Institution	Auspices	Year Established	Enrolment		
				First Year	Second Year	Total
ARIZONA						
Phoenix	Phoenix Junior College	High school district	1920	61	5	66
CALIFORNIA						
Azusa	Citrus Union Junior College	High school district	1915	16	0	16
Bakersfield	Kern County Junior College	High school district	1913	62	12	74
El Centro	El Centro Junior College	High school district	1922	34	..	34
Eureka	Eureka Junior College	High school district	1915	36	12	48
Fullerton	Fullerton Junior College	High school district	1913	120	36	156
Hollister	San Benito Junior College	County high school district	1919	35	17	52
Modesto	Modesto Junior College	Junior college district	1921	61	0	61
Ontario	Chaffey Junior College	Junior college district	1916	172	31	203[a]
Pomona	Pomona Junior College	High school district	1916	49	0	49
Riverside	Riverside Junior College	High school district	1916	149	37	186
Sacramento	Sacramento Junior College	High school district	1916	53	11	64
San Mateo	San Mateo Union Junior College	Junior college district	1922	37	9	46
Santa Ana	Santa Ana Junior College	High school district	1915	111	38	149
Santa Maria	Santa Maria Junior College	High school district	1920	14	1	15
Santa Rosa	Santa Rosa Junior College	High school district	1917	31	9	40
Taft	Taft Junior College	High school district	1922	19	2	21
ILLINOIS						
Chicago	Crane Junior College	City school district	1911	483	182	665
Chicago	Medill School of Commerce	City school district	..	78	47	125
Joliet	Joliet Junior College	High school district	1902	90	22	112
IOWA						
Burlington	Burlington Junior College	City school district	1920	32	20	52
Fort Dodge	Fort Dodge Junior College	City school district	1922	42	..	42
Mason City	Mason City Junior College	City school district	1918	55	3	58
Red Oak	Red Oak Junior College	City school district	1922	36	..	36
KANSAS						
Arkansas City	Arkansas City Junior College	City school district	1922	..	..	..
Fort Scott	Fort Scott Junior College	City school district	1919	19	8	27
Garden City	Garden City Junior College	City school district	1919	27	10	37

MASSACHUSETTS						
Springfield	Springfield Junior College	City school district	1917	48	0	48
MICHIGAN						
Bay City	Bay City Junior College	City school district	1922	..	..	..
Detroit	Detroit Junior College	City school district	1915	..	..	1227
Grand Rapids	Grand Rapids Junior College	City school district	1914	174	86	260[b]
Highland Park	Highland Park Junior College	City school district	1918	102	60	162
Pontiac	Pontiac Junior College	City school district	1918	27	0	27
MINNESOTA						
Coleraine	Itasca Junior College	Independent school district	1922	..	..	..
Ely	Ely Junior College	City school district	1922	..	..	..
Eveleth	Eveleth Junior College	City school district	1917	48	13	61
Hibbing	Hibbing Junior College	School district	1916	..	..	151
Pipestone	Pipestone Junior College	City school district	1919	19	0	19
Rochester	Rochester Junior College	City school district	1915	48	11	59
Virginia	Virginia Junior College	City school district	1921	37	2	39
MISSOURI						
Kansas City	Kansas City Junior College	City school district	1915	508	149	657
St. Joseph	St. Joseph Junior College	City school district	1915	89	23	112
NEW JERSEY						
Newark	Newark Junior College[c]	City school district	1918	..	..	..
OKLAHOMA						
Muskogee	Muskogee Junior College	City school district	1921	28	0	28
TEXAS						
El Paso	Junior College of the City of El Paso	City school district	1920	36	15	51
WASHINGTON						
Everett	Everett Junior College	City school district	1916	7	0	7

[a] Not including Federal Board students.
[b] Does not include ninety-nine students in special groups.
[c] Discontinued in June, 1922.

II. JUNIOR COLLEGES IN STATE INSTITUTIONS

City and State of Location	Name of Institution	Auspices	Year Established	Enrolment		
				First Year	Second Year	Total
California						
Arcata	Humboldt State Teachers College	State	1921	15	0	15
Chico	State Teachers College	State	1921	19	6	25
Fresno	State Teachers and Junior College	State	1921	..	..	303
Los Angeles	Southern Branch of State University	State university	1919	680	400	1080
San Diego	State Teachers College	State	1921	166	54	220
San José	State Teachers College	State	1921	74	15	89
Santa Barbara	State Teachers College	State	1921	..	..	65
Idaho						
Pocatello	Idaho Technical Institute	State	1915	143	59	202
Minnesota						
Winona	Winona State Teachers College	State	1919	18	5	23
New Mexico						
Roswell	New Mexico Military Institute	State	1916	26	18	44
North Dakota						
Bottineau	Forestry State Normal School	State	1915	13	4	17
Wahpeton	State School of Science	State	1910	29	10	39
South Dakota						
Madison	Eastern South Dakota Normal School	State	1921	22	9	31
Spearfish	State Normal School	State	1920	13	11	24
Texas						
Alpine	Sul Ross State Normal School	State	1920	46	32	78
Arlington	Grubbs Vocational College[a]	State	1917	66	15	81
Stephenville	John Tarleton Agricultural College	State	1917	148	40	188
Utah						
Cedar City	Branch Agricultural College	State	1913	..[b]	..	..
Wisconsin						
Eau Claire	State Normal School	State	1916	..	..	..
La Crosse	State Normal School	State	1911	113	21	134
Milwaukee	State Normal School	State	1911	..	..	450[c]
Oshkosh	State Normal School	State	1911	..	..	..
Stevens Point	State Normal School	State	1911	37	17	54
Superior	State Normal School	State	1911	53	61	114

[a] Now designated as the North Texas Agricultural College.
[b] No data.
[c] Approximate.

III. PRIVATE JUNIOR COLLEGES

City and State of Location	Name of Institution	Auspices	Year Established	Enrolment		
				First Year	Second Year	Total
ALABAMA						
Tuscaloosa	Alabama Central Female College	Private	1919	5	1	6
Marion	Marion Institute	Private	..	46	18	64
ARIZONA						
Thatcher	Gila Junior College	Latter Day Saints	1922	..	..	..
ARKANSAS						
Conway	Central College	Baptist Church	1921	18	10	28
Eureka Springs	Crescent College	Private	1910	25	15	40
Mountain Home	Mountain Home Institute	Baptist Church	1921	17	5	22
CALIFORNIA						
Berkeley	A-to-Zed Junior College	Private	1922	23	5	28
Los Angeles	Westlake School for Girls	Private	1917	7	0	7
Oakland	California Concordia College	Lutheran Church	..	9	11	20
DISTRICT OF COLUMBIA						
Washington	Fairmont Seminary	Private	1922	20	9	29
FLORIDA						
De Funiak Springs	Palmer College	Private	..	..	..	..
GEORGIA						
Athens	Lucy Cobb Institute	Private	..	31	21	52
Cuthbert	Andrew College	M. E. Church, South	1914	31	23	54
McRae	Southern Georgia College	M. E. Church, South	1917	36	11	47
Sparks	Sparks College	M. E. Church, South	1920	25	11	36
Waleska	Reinhardt College	M. E. Church, South	1918	13	10	23
Young Harris	Young L. G. Harris College	M. E. Church, South	1916	43	29	72
IDAHO						
Rexburg	Ricks Normal College	Latter Day Saints	1916	47	27	74
ILLINOIS						
Carlinville	Blackburn College	Private	1916	48	28	76
Elgin	Elgin Junior College	Private	1914	50	15	65
Elmhurst	Elmhurst Junior College	Evangelical Synod of North America	1919	38	10	48

III. PRIVATE JUNIOR COLLEGES—*Continued*

City and State or Location	Name of Institution	Auspices	Year Established	Enrolment		
				First Year	Second Year	Total
ILLINOIS—*Continued*						
Godfrey	Monticello Seminary	Private	1915	72	43	115
Lake Forest	Ferry Hall	Lake Forest University	1869	29	5	34
Mount Carroll	Frances Shimer School	Private	1911	45	23	68
River Forest	Concordia Teachers College	Lutheran Synod of Missouri	1909	66	37	103
INDIANA						
Collegeville	St. Joseph's College	Catholic Church	1913	21	14	35
Fort Wayne	Concordia College	Lutheran Synod of Missouri	1839	29	19	48
Vincennes	Vincennes University	Private	1916	..	..	410
IOWA						
Forest City	Waldorf College	Lutheran Church	1920	16	8	24
Lamoni	Graceland College	Latter Day Saints	1914	51	41	92
KANSAS						
Harper	Harper College	Church of Christ	1904	25	20	45
Highland	Highland College	Private	..	..	..	..
McPherson	Central Academy and College	Free Methodist Church	1916	25	17	42
Winfield	St. John's Lutheran College	Lutheran Synod of Missouri	..	16	19	35
KENTUCKY						
Danville	Kentucky College for Women	Presbyterian Church	1914	31	17	48
Elkton	Morton-Elliott Junior College	M. E. Church, South	1921	6	0	6
Hopkinsville	Bethel Woman's College	Baptist Church	1916	54	18	72
Lexington	Hamilton College for Women	Transylvania College	1903	33	12	45
London	Sue Bennett Memorial School	M. E. Church, South	1921	17	4	21
Millersburg	Millersburg College	Private	1918	6	1	7
Russellville	Bethel College	Baptist Church	1919	39	18	57
Russellville	Logan College	M. E. Church, South	1917	30	20	50
Williamsburg	Cumberland College	Baptist Church	1913	43	26	69
LOUISIANA						
Mansfield	Mansfield Female College	M. E. Church, South	1913	46	30	76
MARYLAND						
Forest Glen	National Park Seminary	Private	1915	176	113	289

MASSACHUSETTS						
Bradford	Bradford Academy	Private	1919	54	22	76
South Lancaster	Atlantic Union College	Adventist Church	..	..	..	..
MINNESOTA						
Duluth	Villa Sancta Scholastica	Sisters of St. Benedict	1910	23	9	32
Faribault	St. Mary's Hall	Episcopal Church	1917	12	0	12
Minneapolis	Stanley Hall and Junior College	Private	1914	6	0	6
St. Paul	Concordia College	Lutheran Synod of Missouri	1905	20	20	40
MISSISSIPPI						
Clinton	Hillman College	Private	..	40	32	72
Holly Springs	Mississippi Synodical College	Presbyterian Church	1917	30	24	54
Port Gibson	Port Gibson Female College	M. E. Church, South	..	8	6	14
Vicksburg	All Saints College	Episcopal Church	1909	2	4	6
MISSOURI						
Albany	Palmer College	Christian Church	1919	29	15	44
Columbia	Christian College	Christian Church	1913	78	34	112
Columbia	Stephens College	Baptist Church	1913	204	145	349
Concordia	St. Paul's College	Lutheran Synod of Missouri	1918	24	13	37
Fayette	Howard-Payne College	M. E. Church, South	1913	42	28	70
Frederickton	Marvin College	M. E. Church, South	1916	25	9	34
Fulton	Synodical College	Presbyterian Church	1916	14	12	26
Fulton	William Woods College	Christian Church	1913	69	37	106
Kansas City	St. Teresa Junior College	Sisters of St. Joseph	1916	12	7	19
La Grange	La Grange College	Baptist Church	1917	27	9	36
Lexington	Central College for Women	Methodist Church	1916	45	21	66
Marblehill	Will-Mayfield College	Baptist Church	1919	13	8	21
Mexico	Hardin College	Baptist Church	1901	64	35	99
St. Louis	Forest Park College	Private	1917	..	..	..
St. Louis	Junior College of the Sacred Heart	Ladies of the Sacred Heart	1919	18	14	32
St. Louis	The Principia	Private	1911	61	21	82
NEBRASKA						
Blair	Dana College	Danish Lutheran Church	1898	25	20	45
Seward	Lutheran Seminary	Lutheran Synod of Missouri	1905	26	19	45
Wahoo	Luther College	Augustana Synod	1908	16	0	16
NEW YORK						
Bronxville	Concordia Institute	Lutheran Synod of Missouri	1905	26	19	45
Brooklyn	Packer Collegiate Institute	Private	1910	64	47	111
Millbrook	Bennett School of Liberal and Applied Arts	Private	1906	56	43	99

III. PRIVATE JUNIOR COLLEGES—*Continued*

City and State of Location	Name of Institution	Auspices	Year Established	Enrolment		
				First Year	Second Year	Total
North Carolina ..						
Louisburg	Louisburg College	M. E. Church, South	1909	27	18	45
Mars Hill	Mars Hill College	Baptist Church	1921	13	1	14
Montreat	Montreat Normal	Presbyterian Church, South	1915	13	2	15
Oxford	Oxford College	Private	1921	22	18	40
Raleigh	Peace Institute	Presbyterian Church	1919	32	12	44
Raleigh	St. Mary's School	Episcopal Church	1900	25	22	47
Rutherford	Rutherford College	M. E. Church, South	1919	27	10	37
Weaverville	Weaver College	M. E. Church, South	1912	22	25	47
Ohio						
Glendale	Glendale College	Private	1916	8	3	11
Oklahoma						
Durant	Oklahoma Presbyterian College for Girls.....	Presbyterian Church	..	13	5	18
Oregon						
Milton	Columbia College	M. E. Church, South	1908	12	7	19
Portland	Columbia University	Congregation of the Holy Cross	1921	8	0	8
Portland	St. Mary's College	Sisters of the Holy Names	1916	22	8	30
St. Benedict	Mount Angel College	St. Benedict's Abbey	1920	18	10	28
Pennsylvania						
Reading	Schuylkill Seminary	Evangelical Association	1915	..[a]	..	..
Scranton	St. Thomas College	Catholic Church	1918	55	46	101
South Dakota						
Sioux Falls	Augustana College	Norwegian Lutheran Church ...	..	32	5	37
Wessington Springs	Wessington Springs Junior College	Free Methodist Church	1918	12	7	19
Tennessee						
Athens	The Athens School	M. E. Church, South	1910	26	1	27
Cleveland	Centenary College	M. E. Church, South	1917	16	10	26
Henderson	Freed-Hardeman College	Private	..	..	..	..
Madisonville	Hiwassee College	M. E. Church, South	..	17	11	28
Martin	Hall-Moody Normal School	State Baptist Convention	1918	38	8	46
Nashville	Lipscomb College	Private	1921	30	20	50
Nashville	Ward-Belmont	Private	..	450	100	550
Pulaski	Martin College	M. E. Church, South	1914	27	12	39

TEXAS						
Clarendon	Clarendon College	M. E. Church, South	1898	112	46	158
Decatur	Decatur College	State Baptist Convention	1898	..[b]	..	..
Greenville	Burleson College	State Baptist Convention	1909	69	27	96
Greenville	Wesley College	M. E. Church, South	1912	140	75	215
Jacksonville	Alexander College	M. E. Church, South	1913	69	18	87
Marshall	Marshall College	State Baptist Convention	1916	60	40	100
Meridian	Meridian College	M. E. Church, South	1911	34	29	63
Plainview	Wayland Baptist College	State Baptist Convention	1913	103	28	131
Rusk	Rusk College	Baptist Church	1918	..[b]	..	..
San Antonio	Westmoorland College	M. E. Church, South	1917	45	15	60
Sherman	Carr-Burdette College	Private	..	..	..	..
Sherman	Kidd-Key College and Conservatory	M. E. Church, South	1915	57	30	87
Tehuacana	Westminster College	Methodist Protestant Church	1915	6	0	6
Terrell	Texas Military College	Private	1915	28	12	40
Thorp Springs	Christian College	Church of Christ	1916	23	11	34
UTAH						
Ephraim	Snow Normal College	Latter Day Saints	1912	42	5	47
Logan	Brigham Young College	Latter Day Saints	1913	48	16	64
Ogden	Weber Normal College	Latter Day Saints	1922	90	30	120
Salt Lake City	Westminster College	Presbyterian Church	1914	29	7	36
VIRGINIA						
Abingdon	Martha Washington College	M. E. Church, South	1922	..	..	..
Abingdon	Stonewall Jackson College	Presbyterian Church	..	20	18	38
Blackstone	Blackstone College for Girls	M. E. Church, South	1915	35	11	46
Bristol	Sullins College	Private	1917	75	42	117
Bristol	Virginia Intermont College	Baptist Church	1912	63	50	113
Daleville	Daleville College	Church of the Brethren	1910	12	8	20
Danville	Averett College for Young Women	Baptist Church	1919	16	11	27
Marion	Marion Junior College	Lutheran Church	1912	14	17	31
Petersburg	Southern College	Private	1912	14	6	20
Roanoke	Virginia College	Private	1914	59	48	107
Staunton	Mary Baldwin Seminary	Private	..	..	..	38
WASHINGTON						
Parkland	Pacific Lutheran College	Norwegian Lutheran Church	1920	6	0	6
Spokane	Spokane College	Private	..	..	..	..
WEST VIRGINIA						
Philippi	Broadus College	Baptist Church	1917	18	12	30
WISCONSIN						
Milwaukee	Concordia College	Lutheran Synod of Missouri	1890	25	16	41

[a] Not reported.
[b] Data not supplied in usable form.

APPENDIX B

STANDARDS AND PRINCIPLES FOR ACCREDITING JUNIOR COLLEGES

(Proposed by a Committee on Standards of the American Council of Education)

INTRODUCTION

The following statement of standards for junior colleges is made with clear recognition of the fact that organizations so designated are still in their experimental state both as to the type of work to be included and as to the correlation of such work with that of the high school on one hand and with that of standard colleges and technological and professional schools on the other. The definition is based on the assumption that the junior college is an integral part of a large system and that its standards and courses should facilitate interchange of students and credits between the junior colleges and other higher educational institutions.

DEFINITION

The junior college is an institution of higher education which gives two years of work equivalent in prerequisites, scope, and thoroughness to the work done in the first two years of a college as defined elsewhere by this Committee.

STANDARDS AND PRINCIPLES

The Committee recommends to the various regional and national standardizing agencies as constituting minimum requirements the following standards and principles which should be observed in accrediting junior colleges:

1. The requirement for admission should be the satisfactory completion of a four-year course of study in a secondary school approved by a recognized accrediting agency or the equivalent of such a course of study. The major portion of the secondary school course of study accepted for admission should be definitely correlated with the curriculum to which the student is admitted.

2. Requirements for graduation should be based on the satisfactory completion of 30 year hours or 60 semester hours of work corresponding in grade to that given in the freshman and sophomore years of standard colleges and universities. In addition to the above quantitative requirements each institution should adopt qualitative standards suited to its individual conditions.

3. Members of the teaching staff in regular charge of classes should have a baccalaureate degree and should have had not less than one year of graduate work in a recognized graduate school; in all cases efficiency in teaching, as well as the amount of graduate work, should be taken into account.

4. Teaching schedules exceeding 16 hours per week per instructor or classes (exclusive of lectures) of more than 30 students should be interpreted as endangering educational efficiency.

5. The curricula should provide both for breadth of study and for concentration and should have justifiable relation to the resources of the institution. The number of departments and the size of the faculty should be increased with the development of varied curricula and the growth of the student body.

6. No junior college should be accredited unless it has a registration of not less than 50 students.

7. The minimum annual operating income for the two years of junior college work should be $20,000, of which not less than $5000 should be derived from stable sources other than students, such as public support or permanent endowments. Increase in faculty, student body, and scope of instruction should be accompanied by increase of income from such stable sources. The financial status of each junior college should be judged in relation to its educational program.

8. The material equipment and upkeep of a junior college, its buildings, lands, laboratories, apparatus, and libraries should be judged by their efficiency in relation to the educational program.

9. No junior college should be accredited until it has been inspected and reported upon by an agent or agents regularly appointed by the accrediting organization.

APPENDIX C

SELECTED BIBLIOGRAPHY

(NOTE—The following list contains only references bearing directly on the junior college problem. Space could not be spared for many items having important meaning indirectly for the movement, for repeating more than a minor proportion of all the references mentioned in footnotes of the foregoing report, and for the titles, dates of appearance, etc., of the thousands of catalogues and other documents to which access was had in assembling the materials of this study.)

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